

# COAL AGE

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No. 26

## To the Federal Trade Commission *(An Open Letter)*

GENTLEMEN:

Never before in the history of the coal industry have such extraordinary powers been vested in a single group of men as in you. True, this authority is theoretically nominal; many even believe it will never be anything more. Personally, we have no illusion concerning this; the fuel-supply question, already occasioning distress, will be a dominant factor in our national affairs long before the world is again at peace. There is urgent need for a sweeping co-ordination of effort in the coal industry, and no authority to attain this end will be wanting—if it is exercised with discretion.

We presume you are familiar with the conditions that existed in the anthracite industry last winter. You know the desperately narrow margins that supplies reached on a number of occasions; and you are of course fully aware that only the seven million tons of anthracite in storage averted an actual famine. A people threatened with freezing may become unreasonably impatient.

True, the mine workers have assured us they will make up this deficiency of seven million tons this summer. The anthracite operators have had similar assurances, backed up by formal contracts with the history of which you are probably familiar. Also, you are undoubtedly aware that immigration to this country is one-third normal; that many miners are seeking employment in other lines offering greater remuneration, while still others have been joining the colors.

In the meantime, fuel consumption is expanding to unprecedented proportions. The eyes of the world are focused on the industries of this country, and there must be no hitch

in the operations of our munition plants, ship yards or railroads. A breakdown in any of these great industries due to inadequate fuel supply means that world democracy is lost forever.

You are accumulating an invaluable mass of data concerning the sale and distribution of coal. The most intimate trade secrets are being freely placed at your disposal and we are sure you will not violate this confidence. We, who are publishers, know how jealously this information is guarded.

We are also confident that you will not use this data as a boomerang against those from whom you obtain it. This combined mass of information places you in a distinctive and unique position—gives you an authoritative knowledge of prices and distribution from which there will be no appeal. Your obvious duty is to dispel the growing belief that this knowledge is to be utilized as a club.

Finally, when you fix maximum prices, you will of course study this question carefully; you will make full allowance for the rapidly increasing costs of labor and material; you will take cognizance of the extraordinary profits being made in iron and steel and copper and in all other lines of industry generally. We solemnly warn you to avoid any prejudicial action against the coal industry.

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These, gentlemen, are some of the grave issues you are facing. The burden is heavy, and the coal industry is with you to the last trapper boy in the mine. But there must be no evasion of the stern responsibility. The world is looking up to you confidently, but it will accept no excuses.

## Ideas and Suggestions

### Make Ore Man Responsible

Large establishments generally employ one man to oversee all belting, shafting and transmission machinery. Smaller establishments require this man to do the actual work of aligning, repairing the belts, oiling, etc. It does not matter much whether a plant is large or small in this respect. The principal point is to make one man responsible for the entire transmission end of the establishment. Where one man's business is made everybody's business, it is never done properly, if done at all.

It is logical that a man who has made a specialty of power transmission knows more about it than the operator of a machine, who knows nothing at all of efficiency, tight belts, centrifugal force, etc. As long as the wheels go round, the layman thinks that that is sufficient. The man responsible for the power transmission should in most cases also be made responsible for the cleanliness of the transmission machinery.

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### Construction Cars for Storing Coal

The work of storing coal is quite largely a dumping problem such as railroad-construction firms have had long ago to meet, and for which they have provided equipment specially adapted for the purpose. The coal has to be dumped on the ground away from the track and not under it, as there is no pit and conveyor to remove the coal as it falls. Clearly the regulation railroad car is not the right sort of equipment for this work, though it is often used in default of better.

Not only is the railroad car unsuited for this employment, but it moreover should not be diverted to this purpose. It is not only uneconomical for the operator to use railroad cars, but it is also not advantageous for the

specified that they be built with box extensions, which make the car boxes double the usual depth and enable them to be loaded with 25 tons a piece. The coal company is using these "construction" cars as a means of



AT THE DUMP CARS ARE DISCHARGED AND COAL IS SPREAD BY CLAMSHELL BUCKET

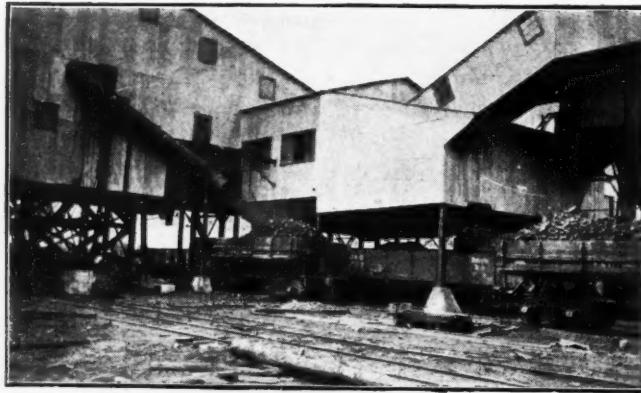
keeping its mines at work when railroad cars are not supplied to transport the regular output.

On such occasions the 15 cars are run under the chutes, are loaded and then pulled in a train by a switch engine to the stockpile. At this pile, located a half mile from the mine, there is a dumping track and a loading crane with a clamshell bucket that moves the coal over after it is dumped. In this way 1400 tons of coal have been stored during a single 8-hour day, the dump cars being switched in between railroad cars.

The cost of the entire operation, including reloading by crane from the stockpiles, is about 7c. per ton. The cars practically paid for themselves during a single week when the mine had to shut down. All urgent orders were filled from the stockpiles, which had accumulated during the previous steady run. It only takes 45 min. to load the 15 cars, run them to the stockpile, dump and return them empty to the tipple.

It is easy to see what opportunities of this kind there are. There is no reason why coal should not be dumped without any dumping track. After a fill of coal has been made, the track can be moved over to the edge of the fill, and dumping can be done over the side as in construction work, the crane not being needed till loading is commenced. In some cases the dumping can be started from a fill already found along the railroad.

The system has advantages in the removing of slate and bone from tipples to dumps along the railroad. Most large corporations need equipment like this for the incidental work around the mines, and once obtained there will be no lack of means for putting and keeping the cars in use. Of course, construction cars of this type can be arranged to dump on either side of the track. The mining engineer is conservative and little disposed to take a leaf out of the book of the railroad engineer or contractor. Here is one he should certainly not have overlooked.



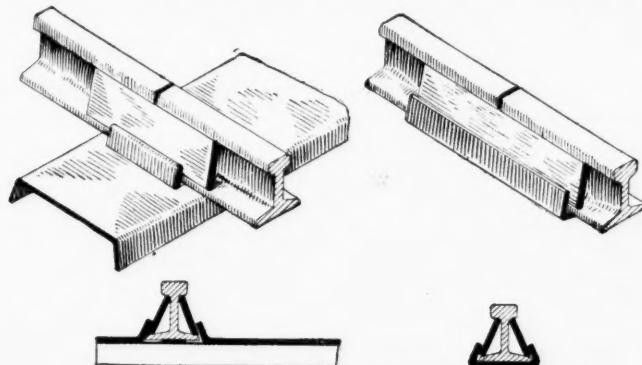
WHEN RAILROAD CARS ARE LACKING, CONSTRUCTION CARS RECEIVE THE SURPLUS OUTPUT

railroad to permit it when, as at present, there is a shortage of coal hoppers.

The Chicago, Wilmington and Franklin Coal Co., at its mines at Orient in Franklin County, Illinois, has purchased fifteen 12-cu.yd. Western dump cars, having first

## New Track and Rail Joint

A jointing device, consisting of a baseplate, 6 in. long, of  $\frac{1}{8}$ -in. steel plate, with longitudinal flanges formed to make an easy fit with the flanges of the rail, and two wedges of  $\frac{3}{16}$ -in. plate having a taper of  $\frac{1}{4}$  in. per ft., which are wedged between the under part of the rail head and the flange of the baseplate, the wedges be-



A SOUTH AFRICAN FORM OF THE STEEL TIE

ing placed on each side of the rail, is described by L. W. Macer in the *Journal of the Chemical, Metallurgical and Mining Society of South Africa*.

If attached to steel ties, the base is formed by punching up lugs in the ties to form flanges to receive the wedges, and an advantage is gained by making joints on the ties, giving greater permanency of alignment of track. The rails can be supported between joints by wooden ties to which they are dog-spiked or by lighter steel ties, using only one wedge.

Wedge joints, stamped from sheet steel, weigh less than fishplates and bolts, the wedge joint for 16-lb. rails weighing 3 lb. 2 oz. against 4 lb. 3 oz. for fishplates and bolts. The steel tie is also simpler, as it avoids the necessity of clutch bolts. The triangular section formed by the wedges and baseplate is of great strength.

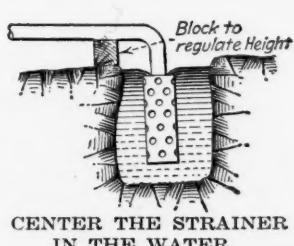
The speed of track laying is greater than with plates and bolts, and where scrap material is available for their manufacture, wedge joints are easily made at the mine with a die and steam hammer.

## Pump Trouble Easily Prevented

BY W. H. LUXTON

The mine at which I work has within the last two weeks been thrown idle by failure of the main pump; not that the pump is of poor construction, but because of the way in which it is installed. Small pieces of coal, wood and other rubbish get into the valve chambers and

prevent the valves from closing tightly. The trouble with the pump was that the strainer by which the water entered was long and laid horizontally, above the bottom or even on the floor of the mine. There was nothing to prevent it from drawing in dirt, chips or pieces of bark, for all these



were kept swirling around, having gathered from points where the miners were digging coal or from the "swags" or "dips" along the haulageway.

Strainers should be set at such a level that the holes by which the water enters are below the free surface and

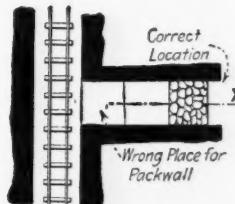
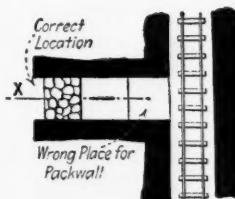
above the bottom of the sump. The surface of the water is full of chips. The bottom is covered by fine material that is large enough to give trouble at the valves and yet small enough to enter the holes in the strainer. If the strainer can be arranged to miss both, any good pump will give satisfactory service.

It should always be arranged that the water does not have to be drawn down so low that the suction made by the uppermost holes will draw floating rubbish into the pipe. For this reason, the end of the pipe should turn over into an adequate sump hole and the strainer be set vertical.

## Protecting Headings from Squeeze

When a heading suffers from squeeze the management of a mine frequently determines to protect it by putting a wall along the rib of the entry at every room, the wall being constructed of roof rock more or less carefully built up. The first thought is to put the wall just inside the room where it will be easiest to build and yet sufficiently out of the way. But a little reflection will show that the wall should be built well in the neck of the room, just about the inner edge of the stump where the room is widened out.

In this way the wall will be erected where the action of creep is the greatest. Hence it will be tightened with the least general movement of the roof and floor. If the wall is located near the heading roadway it is so placed



PUT PACKWALLS WHERE THEY DO MOST GOOD

that a movement that would squeeze the wall enough to make it bear its full load would also overwhelm the coal pillars. It is desirable to utilize the remaining strength of these pillars as well as the strength of the rock walls. This is best done by putting the piles of rock "near the firing line," where the motion and loading reach a maximum. Otherwise the coal pillars will be overwhelmed before they get help from the packwalls.

Another reason for putting these walls back is because it leaves room for further packing should that be necessary. It also leaves the needed shelter holes along the roadway. Another point to be remembered is that a packwall placed along the rib line will rest on clay that in all probability will soon be pushed out into the roadway. The foundation on which it is resting will squeeze away from under it, and it will thus tend to travel at the bottom toward the roadway, partly blocking up the available footway alongside the track.

Finally with a creeping road it is usually found necessary to shovel away oozing clay from the rails. It is best to load this out, but in any emergency the room neck, if not closed at the mouth by a wall, comes in quite handy.

## Dangers Accompanying Use of Carbide

BY J. R. ALLARDYCE\*

*SYNOPSIS—The carbide lamp has largely displaced the crude, spouted oil lamp as an illuminator in mines. The handling of the carbide has, however, brought its own problems and dangers. The substance employed is chemically unstable and possesses a strong affinity for water. If placed in contact with any explosive, fulminate, dynamite or powder, provided that explosive carries moisture, grave possibilities are at once developed.*

Nobody regrets the passing of the spout oil lamp. It was a dirty, unsanitary makeshift at best. The marvel is that it remained so long without a rival. Here and there, where naked lights are permitted, isolated individuals still hang on to it, in spite of the scorn of their more progressive neighbors. But their numbers are steadily shrinking, and the day is not far distant when it will have gone the way of the tallow dip and the hemp rope, with none to mourn its mature demise.

"Carbide" has come to stay. It is a convenient, clean and dependable source of an efficient illuminant. The clear penetrating light from the combustion of its acetylene product has wrought a great improvement in mining conditions. More efficient work, greater safety and a cleaner product are among some of the results to its credit. Furthermore, a careful counting of costs, as compared with oil, strikes the balance decidedly in favor of the use of carbide.

### SHOULD BE HANDLED WITH REASONABLE CARE

After we have conceded all these advantages to carbide, there are, however, other features to be considered. The product has been introduced and distributed widely throughout the mines of the country as a substitute for oil. In most cases it has been accepted too literally as such. It is handled with the same familiarity, and is stored away in the tool chest, in the niches previously occupied by the lard pail or the oil can. This is usually done with complete disregard of the fact that its introduction to the "collection," which comprises dynamite, blasting powder and detonating caps, may be the last link in a vicious circle that one day may be disturbed with disastrous consequences.

Calcium carbide is produced by the fusion of a mixture of lime and coke, under the tremendous temperature of the electric furnace. The metal calcium in the lime parts with its oxygen and combines with a portion of the carbon present to form the calcium carbide of commerce. The oxygen liberated unites with another part of the carbon to form carbon monoxide as shown in the following equation:



The union of the metal with carbon is abnormal, and its affinity for oxygen is unimpaired. When opportunity is afforded, therefore, carbide attacks water in any form, tears its constituents apart and unites itself forcibly with the oxygen. The hydrogen and carbon liberated by this action combine to form the acetylene which is burned in the miner's lamp.

\*Saginaw, Mich.

The tremendous chemical activity of calcium carbide may be partly realized in the statement that, in the decomposition of water, it accomplishes a task which can only be accomplished ordinarily with much difficulty.

This article is not intended to alarm, or to discourage the use of carbide, but to direct attention to the fact that some real dangers attend its careless handling.

Put a little calcium carbide into a wine glass, and add as much dynamite as will cover a dime. Cover the glass for a few minutes, then uncover, and apply a light. You will find that a gas has been evolved which takes fire on the application of the light. Before burning itself out the gas ignites the dynamite, which burns fiercely until exhausted.

Again put some calcium carbide into a wine glass, and add a few grains of blasting powder that has been exposed to the air for some time. Cover for a few minutes. Uncover, and apply a light. You will find that a gas has been evolved which takes fire and ignites the powder.

Take the lid off a carbide can at any time, and apply a light. You will usually find that there is enough gas within the can for ignition and temporary combustion.

Now miners are much the same the country over. Familiarity with the handling of high explosives has bred a contempt for conditions that would raise the hair and stagger the equanimity of the intelligent tyro.

### MIXING CALCIUM CARBIDE WITH DYNAMITE

Conceive this situation. A miner goes to prime a dynamite charge. He seizes a stick of dynamite, drills a hole through it with the tang of a file, pulls one end of the fuse through the hole, and pushes the fuse into a detonator which he takes from a tin containing carbide.

Let us see what we have in that detonator now. We have fulminate of mercury, calcium carbide, dynamite adhering to the fuse (this comprises nitroglycerin, moisture, sawdust and, possibly some free acid) also the various ingredients of the fuse—comprising carbon, sulphur and potassium nitrate or sodium nitrate.

I am ready to admit that the mixture may be quite innocuous until the intrusion of the carbide. But the soberest chemical imagination must be profoundly stirred on the entry of that disturbing factor into such a shaky mixture of explosive material.

I am not acquainted with the actual temperature resulting from the slaking of calcium carbide with water. But, from experience in handling the lamp in which the operation is effected, I should not be surprised to learn that it exceeds the temperature of boiling water.

There appear to be two stages in the evolution of the heat. The first is that in which the decomposition of water takes place, accompanied by the union of the calcium with the oxygen of the water, and the carbon with the hydrogen, as represented in the following simple equation:



This reaction being completed, diminution of the supply of acetylene in the miner's lamp at once takes place, with reduction of temperature. The miner, finding the light failing, instinctively increases the supply of water, an act which is rapidly followed by the steady extinction

of the flame and a great increase in the evolution of heat. The temperature at this stage is often so high that it is impossible to hold the lamp in the hand without injury.

What takes place in this second stage may be represented by the equation,  $\text{CaO} + \text{H}_2\text{O} = \text{Ca}(\text{OH})_2$ , which signifies that after the completion of the first reaction, in which acetylene is liberated, what remains as solid residue in the lamp is simply unslaked lime. The addition of water to this, as is well known, results in the liberation of much heat.

This is the real danger point in the contact of calcium carbide with such irritable bodies as fulminate of mercury and nitroglycerin. The slaking of quick lime in contact with easily combustible bodies, such as wood, has often resulted in fire.

It is not beyond the compass of probability that the frequent assembling of the nervously active chemical bodies, already enumerated, may one day, or any day, result in a combination whose reaction will precipitate a disastrous explosion.

Not being in possession of facilities for conducting the experiments necessary to justify or disprove the theory of a possible explosion from such a cause as outlined above, I submitted the matter to the Bureau of Mines. The officials of that department, in their reply, said that they had applied calcium carbide to the fulminate in the shell of the detonator, in 12 separate instances. No explosion, they stated, had resulted. In an oracular postscript, however, they expressed the view that "it does not seem impossible that, under some circumstances, an explosion would occur."

The courtesy of the bureau officials was unmistakable. But in view of the fact that Thomas A. Edison

conducted a series of 1400 different experiments in pursuit of a principle, I hope I may be pardoned for remarking that the bureau's dozen odd ventures assume somewhat modest proportions.

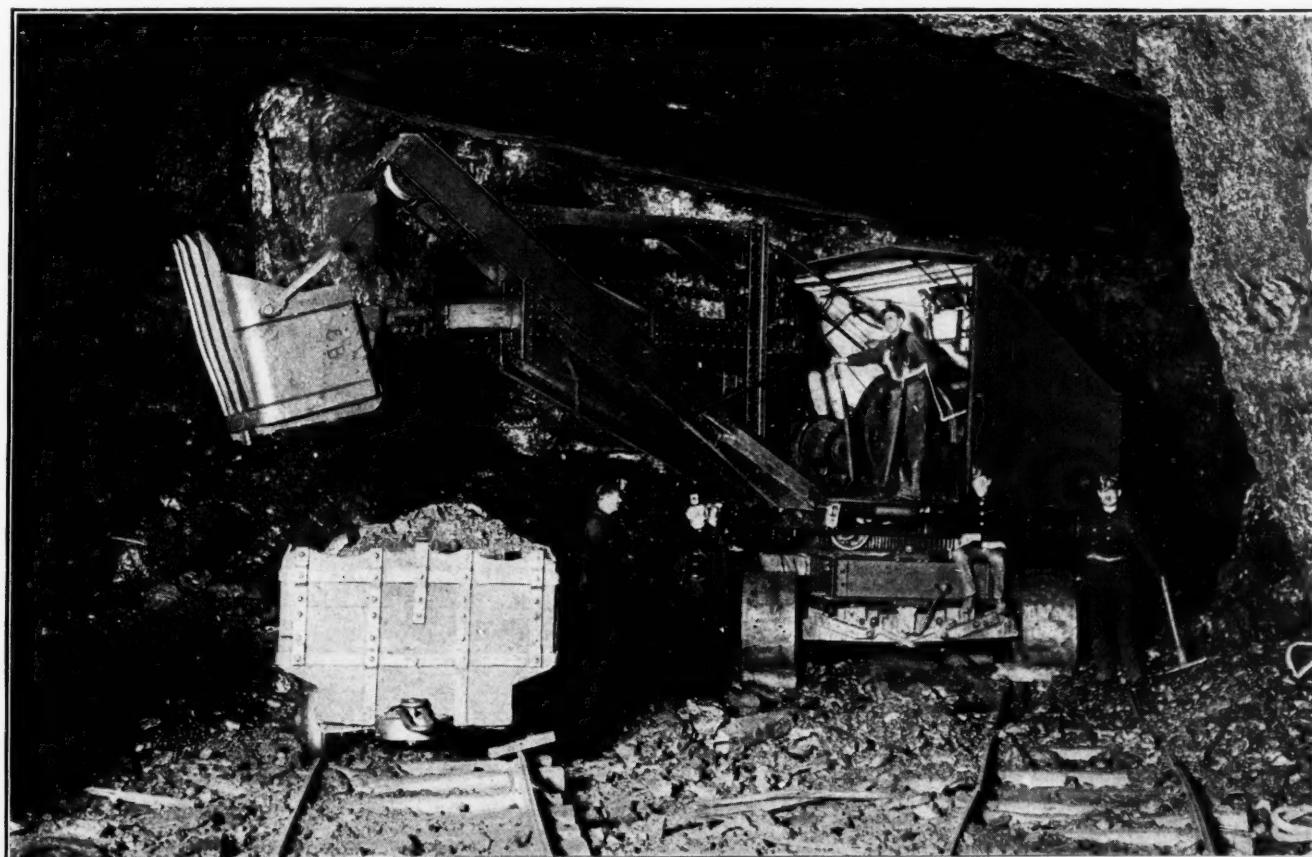
The suggestion from me that the bureau include the action of calcium carbide on dynamite and blasting powder in their investigations was ignored entirely. This was possibly due to a lack of knowledge of the habits of miners, many of whom, as I have already stated, stow dynamite, carbide, powder and detonators all in the same box.

One will run in a hurry to that box and grab a handful of carbide, spilling a quantity over an exposed broken stick of dynamite, and close the lid again. Returning, on a similar errand, he opens the lid and jabs his head into the box, with his lamp burning on his cap. Acetylene gas has been accumulating around the dynamite in the interval.

Or, with the powder keg open beside him, another may suspend his labors on cartridge making and hurriedly restock his lamp with carbide, spilling part of it into the keg, where it starts the generation of acetylene.

The average miner is ignorant of the nature of the simplest chemical reaction, even that involved in the case of burning coal. But if he were to understand that in bringing water into contact with carbide he is performing an act similar to blowing air into a coal fire, and that the carbide is then burning exactly as coal does, he might be more careful in handling it.

The resulting temperature, of course, is much lower than in the combustion of coal. But when conditions are favorable it may be sufficiently high to ignite such a touchy compound as fulminate of mercury.



THE ELECTRIC SHOVEL MAKES ITS DEBUT IN UNDERGROUND WORKINGS

This Tewh shovel loads 50 2-ton mine cars in 2 hours with a crew of 5 men. The coal is undercut with a Sullivan machine and shot down. Three dipperfuls are required to a car and the shovel serves other useful purposes, such as lifting cars on the track. It is electrically driven with a 250-volt current and is somewhat noisy.

## Underground Churn Drilling

BY GUY N. BJORGE\*

**SYNOPSIS**—The initial use of a churn drill underground brought out defects in its design and the drill was practically rebuilt in the company's shops. After this its operation was successful and uninterrupted. Results and costs of the work before and after rebuilding show that with proper equipment churn drill holes for ventilation and prospecting purposes are cheaper than the same amount of sinking or raising.

In December, 1914, a churn drill designed for underground operation was purchased by the Old Dominion Copper Mining and Smelting Co., Globe, Ariz., to drill

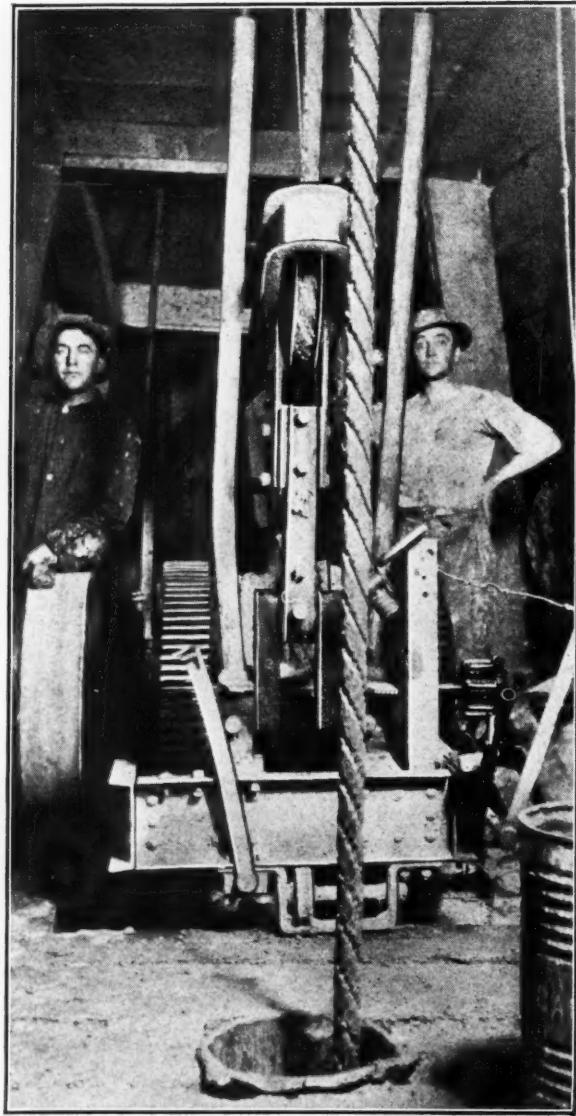


FIG. 1. UNDERGROUND CHURN DRILL AT THE OLD DOMINION MINE

holes to serve two purposes; namely, for prospecting and for ventilation. There were several areas in the mine where prospecting by vertical holes ranging in depth from 100 to 250 ft. from the lowest level would give re-

sults that might save large amounts in the development of new levels. Large holes could be drilled from the 16th level to be used for the ventilation of long development drifts to be driven on the 18th level. The possibility of its use for ventilation led to the purchase of a churn drill rather than a diamond drill, and recent work has shown that a churn drill can be made to serve a useful purpose in the ventilation of new workings.

### TYPE OF MACHINE AND CHANGES MADE

The machine was electrically driven and was so constructed that it could be moved on 18-in. gage tracks through ordinary drifts from one part of the mine to another. The frame was of 7-in. standard steel channels. The motor and controller were mounted on a separate truck, which was bolted to the drilling machine and securely braced when set for operation and could be easily detached for facility in moving. The mast was of 6-in. standard channel of ladder type with 3-in. standard channel braces and carried a crown sheave of 18-in. diameter. This mast was not rigid enough and was used only a short time. Where the drill is operating in good ground, the crown sheave is supported on sprags in the raise, which must be put up for headroom, and in other cases a spliced mast of 12 x 12-in. timber has been used.

The power was furnished by a 6-hp. General Electric special variable-speed motor with belt drive from a small pulley on motor countershaft to a 4-ft. band-wheel on the crankshaft. The machine was designed to drill 8-in. holes to a maximum depth of 300 ft., entirely by spudding.

Actual drilling began in February, 1915. During the next five months work was done on three holes. The machine soon developed a number of weaknesses, and the work was so hampered by frequent breakdowns that at the end of July, 1915, while drilling hole No. 3, it was decided to suspend operations and rebuild the drill. The weaknesses and disadvantages of the original machine were: (1) The band-wheel clutch, which was an internal-expansion friction clutch, kept slipping and breakages were frequent; (2) the crankshaft was too light and was bent; (3) the crankshaft bearings were too light; (4) the drive was from a small pulley on the motor countershaft to a band-wheel of 4-ft. diameter, and the belt kept slipping on the drive pulley; (5) the band-wheel was heavy and cumbersome; (6) in general, the parts were not strong enough and the frame not sufficiently rigid.

The machine was almost wholly rebuilt in the company's shops, and drilling was resumed late in October. Since that time the drill has been in continuous operation for 15 months and has given satisfactory service. The remodeled drill is shown in Fig. 2. The principal changes made were: (1) The frame was made of 8-in. standard steel channels with more bracing and was stronger and more rigid. (2) For the band-wheel and friction clutch there was substituted a gear on the crankshaft, and a new countershaft and pinion were added to drive the crankshaft. (3) The friction clutch for operating the spudding beam was replaced by a jaw clutch. The pinion is loose on the countershaft and forms half of the jaw clutch. A sliding collar on the countershaft works on a feather key which is operated by the clutch control lever.

\*Mining geologist, Box 2434, Globe, Ariz.

(4) The power transmission is a gear transmission from motor to motor countershaft, belt transmission from motor countershaft to clutchshaft, with both pulleys about 2 ft. diameter, and gear transmission from clutchshaft to crankshaft. (5) The crankshaft is heavier and has three bearings instead of two. These bearings are heavier.

The over-all horizontal dimensions of the machine are 12 ft. 6 in. by 3 ft. 6 in., and 25 ft. headroom is required for the mast. The machine can be operated in an ordinary drift, though a little wider space at the head of the machine makes the operation more convenient. A 4 x 4 ft. raise to a height of 25 ft. from the rail gives sufficient space for the mast and crown sheave. Where such raises have been in good ground, the crown sheave has been supported on sprags in the raise and no mast has been used. The machine, in operating position, is shown in Fig. 1. In this case a 12-in. hole for ventilation purposes is being drilled. The cost of preparing sites has ranged from nothing for hole No. 9, where an old raise directly over the drift was utilized, to \$1.895 per foot of hole drilled for hole No. 12, where the entire space was cut out of solid ground. No. 12 was a ventilation hole, and the same space was later used for the blower and motor, so a portion of the cost could justly be charged to ventilation direct. Exclusive of hole No. 12, the cost of preparing sites has averaged \$0.351 per foot of hole drilled.

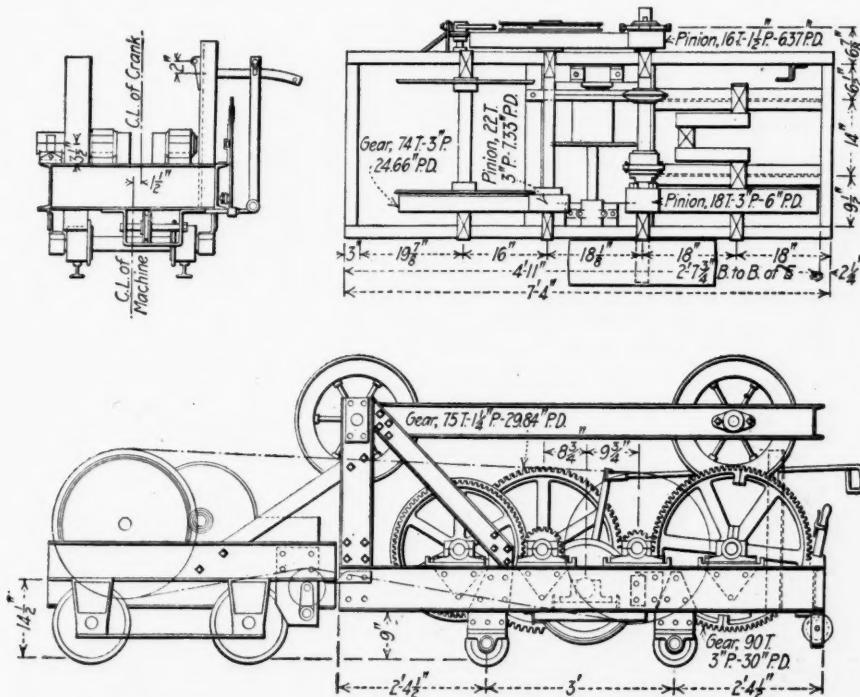


FIG. 2. DETAILS OF THE REMODELED CHURN DRILLING MACHINE

The machine is set for operation and held rigidly in place by small drill columns butting against the overhead timbers wedged and screwed up properly.

The drilling was done by one driller and one helper, working one 8-hour shift per day. The wages were on a sliding scale based on the selling prices of copper and averaged \$6.29 for the driller and \$5.29 for the helper for the total period. As the labor item constituted over 70% of the total operating cost, the high wage scale was a large factor in the cost. Bits were sharpened at the mine blacksmith shop on the surface. The log was kept by the driller on card forms, which were turned in at the end of each shift. The form is shown in Fig. 3.

Up to date 11 holes have been drilled to an average depth of 160 ft., giving a total of 1760 ft. Table I gives general data on operation and a summary of performance

TABLE I. GENERAL DATA AND SUMMARY OF COSTS

	First Period— Holes 1 to 3	Second Period— Holes 4 to 10	Third Period— Hole 12	Total
	Hours of Total %	Hours of Total %	Hours of Total %	Hours of Total %
Moving.....	137.0 9.50	247 15.95	58 9.87	442.0 12.35
Drilling.....	504.5 35.02	1,032 66.62	457 77.72	1,993.5 55.72
Fishing.....	342.0 23.74	29 1.87	13 2.21	384.0 10.73
Repairing.....	239.5 16.62	127 8.20	26 4.42	392.5 10.97
Casing.....	95.0 6.59	105 6.78	2 0.34	202.0 5.65
Reaming.....	123.0 8.53	9 0.58	32 5.44	164.0 4.58
<b>Total....</b>	<b>1,441.0 100.00</b>	<b>1,549 100.00</b>	<b>588 100.00</b>	<b>3,578.0 100.00</b>
<b>Summary of Performance</b>				
Total footage.....	441.500	1,124.000	195.000	1,760.500
Footage per 8 hrs.....	2.451	5.806	2.653	3.936
Footage per 8 hrs., actual drilling.....	7.001	8.713	3.415	7.058
<b>Summary of Costs</b>				
	Cost per Ft. Cost % of Cost	Cost per Ft. Cost % of Cost	Cost per Ft. Cost % of Cost	Cost per Ft. Cost % of Cost
Repairing sites	\$0.306 3.96	\$0.369 8.21	\$1.895 27.05	\$0.522 9.34
Operating.....	5.951 77.07	3.126 69.54	4.111 58.67	3.944 70.65
Raising to recover tools.....	0.465 6.02	.....	.....	0.116 2.10
Proportion of initial equipment.....	1.000 12.95	1.000 22.25	1.000 14.28	1.000 17.91
<b>Total....</b>	<b>\$7.722 100.00</b>	<b>\$4.495 100.00</b>	<b>\$7.006 100.00</b>	<b>\$5.582 100.00</b>

and costs. In summarizing the performances and costs, the work has been considered in three periods, each representing certain conditions of operation.

The first period covers the first three holes, when the work was still largely experimental and while it was hampered by numerous breakdowns. Detailed costs of operation during this period are given in Table II. Hole No. 3, included in this period, gave more than an ordinary amount of trouble. The tools were lost twice, and the second time two sets of fishing tools were lost in attempting to recover the drilling tools and it finally became necessary to raise from the level below to recover the tools. The item of repairs was abnormally large during this period, amounting to more than it has for the entire time since. The second period covers holes Nos. 4 to 10. These were all prospect holes and were started with an 8 1/2-in. bit and finished with smaller bits where casing became necessary. In the area to be prospected, the vein has an average dip of 70 deg., and two holes were located in each crosscut on the 16th level so as to cut the vein at depths of 100 ft. and 200 ft.

In this area both the hanging wall and the foot wall are diabase and the drilling was all in diabase and vein material, consisting largely of altered diabase with some vein quartz and including some blocks of silicified sediments. While in the wall rock, small samples were taken at 5-ft. intervals for geological examination. When the vein was encountered, regular 5-ft. samples were taken for assay. The full sludge was cut down to 10 to 15-lb. samples. This period gives a fair idea of the performance that may be expected from a machine of this type when used for prospect holes which are sunk about 200 ft. deep and starting with 8 1/2-in. and finishing with bits 6-in. diameter.

The third period includes only one hole, No. 12. This was a ventilation hole drilled from the 16th level to furnish ventilation for a new drift on the 18th level. The upper 33 ft. was diabase and the remainder a hard silicified limestone, and the hole was drilled with a 12-in. bit throughout. From a comparison with the second period

TIME CARD  
OLD DOMINION COPPER MINING & SMELTING CO.

**DRILL WORK**

DAY	Shift
Depth of hole at end of shift	91
Depth of hole at beginning of shift	86
Size of bit	4 7/8
NO HOURS	WORKING ON
5	DRILLING
3	CASING.

Date 9-18 1916 Name JOHN DOE  
 Occupation DRILLER Rate 6.00  
 Total hours worked 8  
 JOHN DOE Foreman.

FIG. 3. TIME CARD OF UNDERGROUND CHURN-DRILL OPERATION

it will be seen that the cost of drilling a hole with the large bit is approximately \$1 per ft. more than the average cost of drilling the smaller holes.

The total cost of the initial equipment was \$2382; the alteration to machinery cost \$876, and the additions to equipment cost \$492, making a total of \$3750. The

In opening the 18th level from the main operating shaft, the main drift was to be driven about 2500 ft. before a connection would be made which would serve to ventilate this level. The station at the 18th level was hot, and the air supply that could be drawn on from this point was poor. It was therefore decided to ventilate this drift through churn-drill holes from the 16th level. The first hole was started at a point 1000 ft. from the shaft and drilled to a depth of 196 ft. with a 12-in. bit. As soon as the 18th-level drift reached this point, a Baker rotary pressure blower, No. 44, driven by a 20-hp. General Electric motor at 1025 r.p.m., set at the collar of the hole, was started, and in only a few hours the 18th-level drift, which had been the hottest place in the mine, became one of the coolest and best working places. As the drift was advanced, the air was carried to the face through a 12-in. galvanized-iron fan pipe. A second hole is now being drilled at a distance of 800 ft. from the first, and this will serve to ventilate the 18th-level drift until raises have been put up to the 16th level.

The advantages of churn drill holes for ventilation of new levels under such conditions as given are several: (1) the hole can be drilled through and ready to serve its purpose as soon as the drift reaches it, and the delay incident to raising for ventilation is avoided; (2) if in an area where no raise is needed for subsequent operation, there is a material saving over raising; (3) with 200 ft. between levels, driving a 200-ft. raise, which would be extremely hot and also expensive, is avoided.

The remodeled machine was designed by the company's mechanical-engineering department under the supervision

TABLE II. DETAILED COSTS OF UNDERGROUND CHURN DRILLING

	First Period—Holes 1 to 3			Second Period—Holes 4 to 10			Third Period—Hole 12		
	Cost	per Ft.	% of Cost	Cost	per Ft.	% of Cost	Cost	per Ft.	% of Cost
Labor:									
Moving.....	\$288.91	\$0.656	11.02	\$552.68	\$0.492	15.74	\$65.65	\$0.337	8.25
Drilling.....	602.50	1.364	22.92	1,612.27	1.434	45.87	484.65	2.485	60.47
Fishing.....	379.25	.858	14.42	55.08	.049	1.57	19.70	.101	2.43
Repairing.....	289.66	.656	11.02	179.30	.159	5.09	41.25	.212	5.12
Casing.....	110.35	.250	4.20	158.93	.142	4.54	15.00	.072	1.05
Reaming.....	151.00	.342	5.75	13.27	.012	.38	42.00	.215	5.85
Total.....	\$1,821.67	\$4.126	69.33	\$2,571.53	\$2.288	73.19	\$668.25	\$3.427	83.36
Supplies:									
Power.....	\$56.09	\$0.127	2.13	\$73.24	\$0.065	2.08	\$19.30	\$0.099	2.41
Rope.....	102.93	.233	3.92	13.98	.012	.38			
Repair parts.....	32.53	.074	1.24	103.54	.092	2.94			
Casing.....	58.61	.132	2.22	131.31	.117	3.74			
Miscellaneous.....	81.91	.186	3.13	24.56	.022	.70	1.75	.009	.22
Total.....	\$332.07	\$0.752	12.64	\$346.63	\$0.308	9.85	\$21.05	.108	2.63
Shops:									
Sharpening bits.....	\$256.58	\$0.581	9.76	\$309.58	\$0.275	8.80	\$93.00	\$0.477	11.60
Mine machine.....	19.18	.043	.72	15.81	.014	.45	15.00	.077	1.87
Carpenter.....	8.66	.020	.34	8.75	.008	.26			
Electric.....	52.99	.120	2.02	196.67	.175	5.60	.70	.004	.10
Machine.....	36.18	.082	1.38	62.82	.056	1.79	3.60	.018	.44
Blacksmith.....	100.01	.227	3.81	1.80	.002	.06			
Total.....	\$473.60	\$1.073	18.03	\$595.43	\$0.530	8.16	\$112.30	\$0.576	14.01
Total operating cost.....	\$2,627.34	\$5.951	100.00	\$3,513.59	\$3.126	100.00	\$801.60	\$4.111	100.00
Raising to recover tools.....	205.15	.465					369.55	1.895	
Preparing Sites:									
Labor.....				\$259.80					
Supplies.....				117.80					
Air drills.....				23.12					
Timber.....				13.10					
Total.....	\$134.95	\$0.306		\$414.32	\$0.369				
Proportion of initial equipment.....	\$441.50	\$1.000		\$1,124.00	\$1.000		\$195.00	\$1.000	
Total cost.....	\$3,408.94	\$7.722		\$5,051.91	\$4.495		\$1,366.15	\$7.006	
Holes drilled.....	3			7			1		
Total footage.....	441.50			1,124.00			196.00		
Average depth of holes, ft.....	147.17			160.57					

initial costs are being charged off at an arbitrary rate of \$1 per ft. of hole drilled. As the initial equipment charge amounts to about 20% of the total cost, there will be a material decrease in costs when the equipment account is finally closed.

of C. E. Mendelsohn. Thanks are due to C. E. Mendelsohn, mechanical engineer, and H. L. Norton, chief engineer, for material for portions of this paper and also to P. G. Beckett, general manager, and I. H. Barkdell, mine superintendent.—*The Engineering and Mining Journal*.

# Lively Discussions at Charleston Institute

EDITORIAL CORRESPONDENCE

**SYNOPSIS**—A somewhat small attendance but a most interesting discussion signalized the recent meeting of the West Virginia Coal Mining Institute at Charleston, W. Va. Papers again and again failed to make their appearance, but the interest after the first session was unflagging.

It was clearly proved at the West Virginia Coal Mining Institute meeting held June 5 and 6, at Charleston, W. Va., that papers and attendance do not make or break an institute as far as interest is concerned. If you have a president who will lead the discussion into vital topics and "start something," you can get away from formalities and learn a great deal about mining methods, machinery and conditions even within the compass of four or five short sessions.

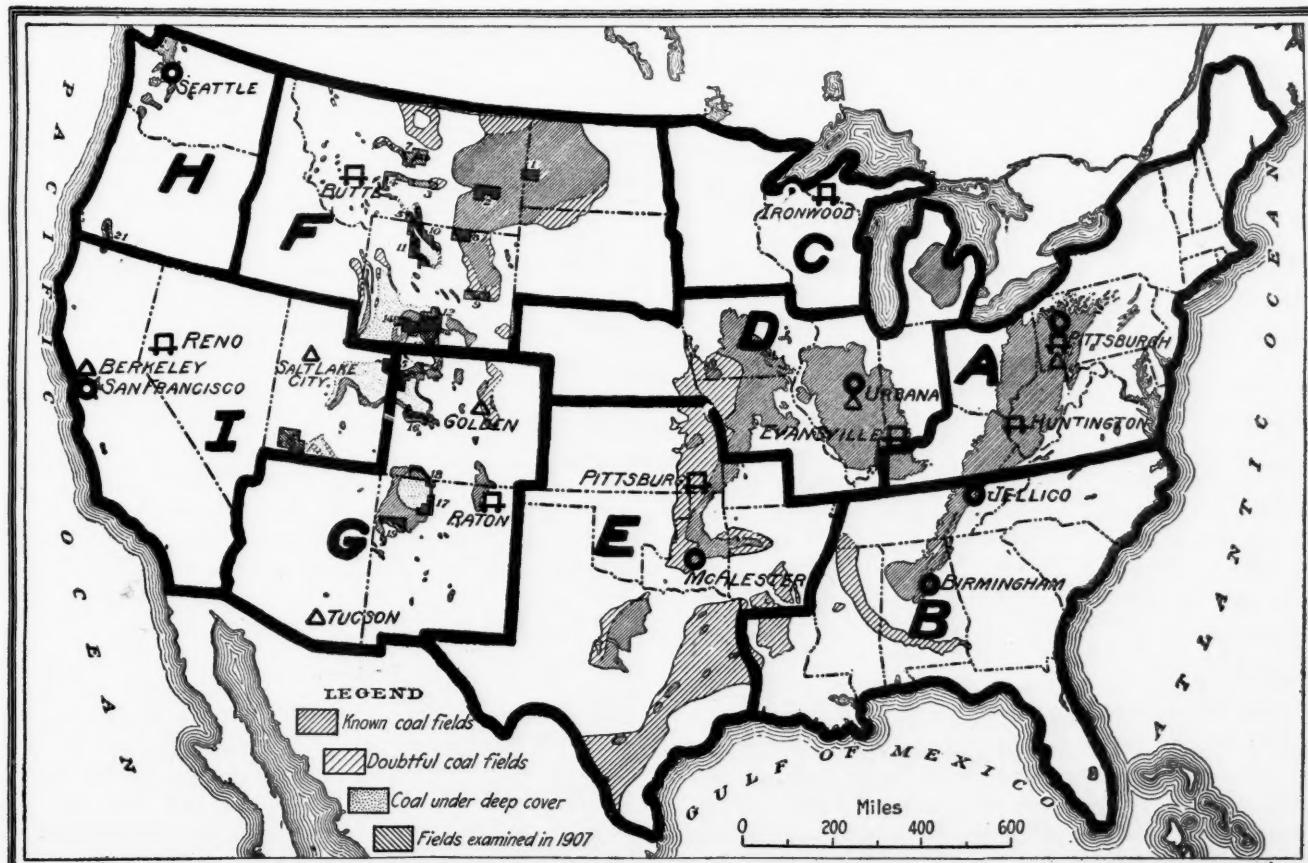
To Josiah Keely, the president of the institute and the chairman of the meeting, and E. N. Zern, who took care of the discussion on mine haulage and aided with his suggestions from start to finish, much credit is due for keeping the discussion going.

Looking over the program, a few papers seemed quite vital and interesting, but none of these was presented. A. H. Land did not discuss the car shortage; M. H. Hall was not present to tell the members how to avoid wastes of material; A. J. King did not appear with a paper on storage-battery locomotives, and James Kain

neither attended nor presented an address on shortwall machines in the Pittsburgh seam.

Among the papers delivered was an address by the president, Josiah Keely, but he was not in his best mood. A deputy inspector spoke on that hackneyed subject "Better Mine Foremen"; J. W. Paul read an address on the bearing of the war on the industry—a conservative statement without outstanding features which one could carry away from the meeting.

And what could be anticipated of the article by R. Dawson Hall with a title so unassuring as "Are the Contributors to Our Mining Journals Successful Mining Men"? In that paper all that little information that was really germane to the matter at issue was just neither more nor less than could be expected of it. The whole matter of the address was sufficiently set forth in the title without any further elaboration. "Welfare Work" was the subject of another paper. The general experience is that articles on this department of mining work also are more than usually banal. Yet the meeting was a success, for the meat of the sessions was really in the discussion, though, as an exception, it may be noted that Frank Haas had a thoughtful paper which appeared in *Coal Age* in the issue of June 16, pp. 1026-1029. One of the most interesting parts of the meeting was the address by John Laing, who said that the committee on Coal Production of the Council of National Defense has ascertained that the visible supply of the



DISTRICTS INTO WHICH COMMITTEE ON COAL PRODUCTION HAS DIVIDED THE UNITED STATES IN ORDER TO FACILITATE PRODUCTION AND DISTRIBUTION.

world's coal had decreased from 425,000,000 tons, as in normal times, to only 22,000,000 tons. He stated that the whole country had been districted and that in all probability the production of West Virginia would not be allowed to go Westward, but would be conscripted for the Eastern markets and for supplying France, Italy and South America. The official districting map is shown on the preceding page.

G. A. McQueen, mayor of Charleston, welcomed the members at the morning session, and his remarks were followed by a second speech of welcome from Herbert Frankenberger, president of the Chamber of Commerce. Reference has already been made to the president's address. It was followed by remarks from J. W. Bischoff and E. N. Zern on the "Needs of the Institute."

The needs are many and insistent, and they have never been discussed better than Mr. Zern has discussed them at previous meetings, but no one could add anything to what has been said before. Why not drop this subject? It is the damp cloth on every institute and one of the leading reasons why so many of the institutes are so unsuccessful. An energetic and popular president like McKeely will provide his own solution for the problem.

Just imagine the management introducing into grand opera a discussion on "Why the Interest in Grand Opera Is Flagging," by Enrico Caruso. It would be nothing if not amusing. Mournful subjects like these should be left to executive meetings and discussed there only infrequently.

It was L. D. Vaughan, the deputy state inspector at Grafton, W. Va., who was appointed by chief inspector Earl A. Henry to speak on "Better Mine Foremen." He was well chosen, for he made an eloquent address, the outstanding features of which were that mine foremen should visit every working place every day and should make their orders for the setting of props and removing of loose rock mandatory and not advisory. He declared that mine foremen were not given a free enough rein to do what they believed was for the best interests of the company and the safety of the mine worker.

#### MINE RAILS GOOD, BAD AND INDIFFERENT

E. N. Zern then introduced the question of "Mine Haulage" with a few remarks on the relative value of different track materials. The high price of iron rails is giving the mine superintendent a new reason for favoring the wood rail, but apparently timber track had no real advocates, especially among mine foremen.

C. A. Cabell stated that wood rail cost 2c. per foot and steel rail about 10c. An objection to wood rail lay in the fact that no one was interested in saving it. It had been so cheap in earlier years that now it was dearer there was a disposition to forget that it cost money. On the other hand steel rail, while not so deliberately wasted, was quite frequently lost, especially in pillar drawing. As its loss was five times as costly, the need for economy made wood rail in places less undesirable. The effect of wood rail in reducing tonnage was clearly stated.

The relative value of different forms of steel ties was brought up for discussion. Some firms have all three types of steel ties that are now in the market in use at their mines. There were plenty of men willing to vouch for the ties as a class, but no one seemed to prefer any one type to any other. Judging from the remarks they were all giving complete satisfaction.

There was no such cheerful indorsement of rerolled rail. One man said that the trouble lay in the fact that the rail to be rerolled was of variable composition and so needed variable heat treatment. He alleged that no consideration was or could be paid to that fact by the manufacturer of rerolled rail in the conduct of his plant, as a chemical analysis of each batch of rail thus treated could not be profitably made.

Some of the rail thus brought in for rerolling is soft and some hard. As a result there was no single manner of operation which would reroll this variable material in a successful manner.

C. A. Cabell declared the rerolled rail breaks frequently in unloading and is so hard and brittle that it is impossible to make partings with it, as it is cracked when struck on the anvil. Another declared that it breaks in use. Mr. Cabell preferred a second-hand billet rail from abandoned log railroads to a rail which comes from a rerolling mill.

#### COAL APLENTY IF THEY COULD HAUL IT AWAY

In the afternoon Earl A. Henry's paper on the progress of mining in West Virginia was read. He estimated that if the mines worked steadily the output of the state would be 125,000,000 tons a year. Fayette County was given first place as a producer. Mr. Henry said that fatal accidents in West Virginia decreased last year by 56 and nonfatal accidents by 451. He declared that the inspection department was indifferently housed at the Capitol and needed more accommodation. The salaries of the inspectors were too low if the best men were to be obtained. Recently no less than eleven men have accepted other positions.

As A. H. Land, the secretary of the Guyan Valley Coal Association, was not present, and no one even knew whether he had been asked to submit the paper assigned to him, the institute had no other option than to accept his paper as if read and proceed to discuss the points which might have been raised had it been presented.

The chairman introduced the question whether mine-car storage furnished a suitable means of providing coal in available form for speedy loading when railroad cars were at last belatedly provided. Frank Haas declared that up-to-date mine cars would cost nearly \$100 per ton capacity, whereas bins could be erected for \$20 per ton of storage room. When coal was dumped on the ground perhaps storage could be obtained at an expenditure of \$1 per ton of storage capacity thus secured.

#### CAN LOAD 1500 TONS FROM BINS IN ONE HOUR

This latter plan, however, was undesirable as the cost of loading from such piles was considerable and the time required for such loading none too short. The Consolidation Coal Co. has been erecting bins to hold 1500 tons and they are proving quite valuable.

Suppose a string of railroad cars are put into the siding at 3 p.m. on Saturday. Ordinarily, as everybody would be home, nothing could be done toward loading the cars till Monday morning. The mine would run on that day, and some time that evening the full train of cars would be loaded. With the bin provided, the few men needed could be hustled out and the cars loaded and on their way to market in an hour.

In this way almost three days' use of the railroad equipment is saved to the railroad and the general al-

lotment of cars to the mines along the road is by that means increased, though the individual company does not gain in allotment relative to other mines on the same road which have not gone to the same expense.

Mr. Haas said the bins made it possible to work the mines when the promise of the railroad was broken, and cars were not delivered in the morning as anticipated. When storage is provided the mines can work whether cars are delivered or not, and they do work whenever a notice has been posted to that effect. This is a great advantage to the men and the company.

Not only are mine cars an expensive form of storage as far as first cost is concerned, but their rapid depreciation makes their purchase for this purpose a practice to be deprecated.

#### WHERE DO EXECUTIVES WASTE THE MOST?

When M. H. Hall's paper was not forthcoming it was decided to discuss the subject just as if the address had been delivered, and losses around the coal mine were accordingly considered. Mr. Rose declared that the largest loss around the mine arose from the waste of copper. This is somewhat alarming to those who have always placed copper as the one item around the mine which practically did not depreciate materially. Apparently the view that copper endures forever, so confidently asserted in the past, is not substantiated in practice.

Three of those who were present said that the loss of wood rail was the source of greatest waste. It would therefore appear that wood rail is still quite generally in use in some parts of central West Virginia. One man coupled wood rail with power and others advanced waste of time and waste of props as the large losses in mine operation.

Frank Hass said that it was a mistake to regard unrecovered props standing in a room as lost material. After a prop had stood for a year it was of little value and had no strength. The important matter was to reduce the number of props used to the lowest number possible, not by being indifferent to the requirements of safety, but by so conducting the work that a minimum of props is needed.

#### TIMBER LOSSES IN REOPENING OLD WORKINGS

Mr. Haas said that one prop serves for the recovery of 16 tons in the mines of the Consolidation Coal Co. However, in some of the reopened workings of that company in Georges Creek only 2 tons can be recovered per prop used. A 9-ft. prop costs about 14c., and the high cost of props in the second instance results in an expenditure for timber of 7c. per ton.

E. N. Zern declared that the H. C. Frick Coke Co. recovers 80 per cent. of its timber. It drives up its places rapidly and quite narrow and so finds that the timber can be drawn before it is rotten or broken. He believed that in this way the maximum economy in timber would be secured.

The discussion then switched, with E. N. Zern as pointsman, to the loss of energy in the filling of mine cars, assuming that when coal was loaded onto cars the elevation of the shovel on discharge might be assumed as 8 in. above the height of the rear end of the car. Mr. Zern said he had calculated from standard figures relating to the output of human energy that a man could load 44 tons over an end 32 in. high and 27 tons over one 52 in. high.

But it was questioned whether the height of the end was so important as to be determinative of the ability of the miner to load coal. It is a matter well understood that the delivery of cars and not the physical requirements of car loading determine the output of the men per hour worked. A larger car by making the work more continuous and each item of it more worth the while may increase the output even though each pound of coal may demand more energy for its emplacement in the car.

Does not Samuel Dean assure us that in the small cars of British mines lies the secret of the small output per man? One cannot believe that he has discovered in the meager "tub" of Great Britain a sufficient cause for small outputs. Still everyone is willing to grant that small cars result in more waste of time than large cars, and one can readily believe that this time, which is utterly wasted to the miner, does more to hinder him than the lower demand that is made by the small car on his vital energy can help him.

It was pointed out by Mr. Keely that on an average a man, at least at the mines of the Cabin Creek Consolidated Coal Co., would load only 10.7 tons per day. This fairly represented the output of all the men shooting and loading the coal but not otherwise handling it. It was tolerably regular from month to month. He felt sure that the same men would load 16 tons per day if the drivers could place cars for them with the requisite regularity and promptitude. The regular delivery of cars at the face is one of the most difficult of mine problems.

#### CONDITIONS WHICH MODIFY MINERS' OUTPUT

A member of the institute from Boomer said that the mining conditions are important in determining the output. The seam thickness and character have an undoubted influence on it. At the Boomer mine and No. 4, 15 tons per day were loaded per loader engaged. The loaders both blasted and loaded their coal. At the mine in the Eagle seam only 10 to 11 tons were loaded, and the pick miners only produced 7 to 10 tons per day.

The large tonnages per man obtained in the "concentration" method by the H. C. Frick Coke Co. were mentioned, and it was declared that this unit output was probably obtained in part because the men could be shifted from place to place without their sustaining any loss. It was said that the distances were short between places and the places all in coal of like character, and that the loaders only loaded coal and therefore needed only a minimum equipment and, moreover, it was alleged that they were willing to move from place to place having no vested interest in any coal not already loaded, it not having been mined, drilled or shot down by them. It was very easy to say to a man, "Go here" or "Go there," for the transference involved no delay and did not cause him to lose or risk any of the labor which he had already expended. Mr. Dawson said that the Colorado Fuel and Iron Co. followed a similar plan, no man having what Mr. Dawson interestingly termed a "home place."

Mr. Zern stated that the H. C. Frick Coke Co. was using every endeavor to make larger outputs possible and had even gone so far as to string incandescent lamps into every working place. There is little doubt that this is a great improvement, for no advantage can be secured from operating a coal mine full of working men with facilities which are found inadequate even in a storage cellar.

## Filing Survey Data at Mines—II

BY R. S. SCHULTZ, JR.\*

**SYNOPSIS**—A routine of drafting-room procedure is suggested and the advantages and disadvantages of different methods of filing loose-sheet material are outlined. Special attention is given to the separation of home drawings and foreign drawings. Importance of careful indexing and protection against fire strongly emphasized.

When a new drawing is to be made, the chief engineer gives the necessary instructions to the draftsman, together with the title and the drawing number. As he does this, the chief engineer fills in the drawing-record card shown in Fig. 7 and places it in a suitable file until such time as the finished drawing shall come to him for approval. He also enters the title in a consecutive-number record, usually kept in a small notebook or on 3x5-in. index cards, which is intended for his reference only, to make duplication of numbers impossible.

The draftsman enters the title and number of the drawing in ink on the detail paper and proceeds on the work. When the tracing is started, the title is filled in first, including the initials of the maker and the tracer. The tracing completed, the drawing passes to the checker, who

necessary instructions to the draftsman and enters the nature of the changes on the record card, which he then files as with a new drawing. The draftsman enters the changes in the table of changes and completes the work. The drawing then passes through the hands of the tracer and the checker to the chief engineer. He approves it, attaches the card filled out as before, and sends both to the file clerk, who has the necessary prints made, stamps the issue number in the proper place in the title and sends the reissued prints to the proper parties.

The drawing-record card, already referred to and shown in Fig. 7, is intended as a complete record of the drawing. It is used primarily as a consecutive-number index card, but is much more. It shows that drawing 1076 is of the "details of automatic stop for 24x48-in. hoisting engine at shaft No. 5." It is filed in file 2, drawer 3. It was started June 21, 1914, by C. H. It was traced June 25, 1914, by T. H. C. and was checked June 28, 1914, by W. K. T. It was approved June 28, 1914, by C. B., and prints were sent the same day to the power department, to the machine shop and to the Kansas City Foundry Co. and the Denver Machinery Co., probably for bids. On July 2, 1914, pattern 1076-B was replaced by a new design, pattern 1076-H, which was drawn by C. H., traced

Title: Details of Automatic Stop—24"x48" Hoisting Engine Shaft No. 5 Scale: $\frac{1}{4}$ " and $\frac{1}{2}$ " = 1"				Drawing No. 1076				
				File No. 2				
				Drawer No. 3				
Issue No.	Original	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7
Description of Alteration		Casting 1076-B Replaced by Casting 1076-H						
Drawn By:	G.H.	6/21/'14	C.H.	7/2/'14				
Traced By:	T.H.C.	6/25/'14	K.T.B.	7/2/'14				
Checked By:	W.K.T.	6/28/'14	W.K.T.	7/2/'14				
Approved By:	C.B.	6/28/'14	C.B.	7/2/'14				
Sent to:	Sent	Ret.	Sent	Ret.	Sent	Ret.	Sent	Ret.
Power Department	6/28/'14	7/3/'14	7/3/'14					
Machine Shop	6/28/'14	7/3/'14	7/3/'14					
Kansas City Foundry Co.	6/28/'14	7/7/'14	7/3/'14					
Denver Mach'y Co.	6/28/'14	7/9/'14	7/3/'14					
Copper Mining Co. Drawing Record Card								

FIG. 7. CARD FORM USED FOR RECORD OF DRAWINGS

enters his initials after thorough checking and passes it to the chief engineer for his approval. On approving the drawing, the chief engineer affixes his initials. He then removes the drawing-record card from his file and enters on it the names of all persons or firms to receive prints together with the number to be sent to each. He then attaches the card to the tracing and sends both to the file clerk. The latter, in turn, has the necessary prints made, places one in the files and distributes the others as directed, entering the date of sending on the record card, which is immediately filed.

In the case of alterations or additions made to the original tracing, practically the same procedure is carried out. The record card is withdrawn from the files and goes with the tracing to the chief engineer, who gives the

by K. I. B., checked by W. K. T. and approved by C. B., all on the same day. Prints were sent out July 3 to the same parties as before. The original issue prints sent to the power department and machine shop were returned the same day, but those sent to outside parties were not returned until the 7th and 9th of the month. This print record is of especial value in showing whether a department or firm has the latest prints and whether prints from previous issues have been returned.

### THREE METHODS OF FILING DESCRIBED

There are three well-recognized methods of filing loose-sheet material—folded, rolled and flat. Each has certain advantages.

**First:** Folded to suitable size for filing in document, letter or similar files. This method requires material that

will not be injured by folding. It is adapted to a wide variation in size, but the material should be thin enough and small enough to fold into the required size without becoming too bulky. The advantages are that material is filed with a minimum of waste space, filing equipment requires minimum floor space, uniform size of material is unimportant, excellent classification is possible in medium-sized units, first cost of filing equipment is low, expansion is possible in small units at a minimum cost and that material should never be lost except through gross carelessness. The disadvantages are that material must be folded for filing and unfolded for even momentary reference, material must be marked and numbered before filing (with possibility of error), errors in filing are difficult to trace, method cannot be used for material that will be injured by folding and that material must be creased for filing, with possible obliteration of important figures and with increased possibility of tearing.

Second: Rolled, to be filed in suitable drawers, pigeon-holes or containers. This method is adapted to material of unusually large size which will be seriously injured by folding. It is especially suited to mounted drawings, unusually large tracings, or long rolls such as hydro-graphs. The advantages are that the method is adapted to a great range in size and in material, material is largely self-protected from the effects of dust and light, filing is

disadvantages are that filing cabinets require large floor space (not necessarily true with vertical files instead of drawers), the first cost of filing cabinets is large, expansion is possible only in relatively large units at considerable expense, uniformity in size of material is very desirable, the method leaves considerable waste space even under the most favorable conditions, and that in overcrowded drawers material may be torn in removal or lost by being pushed back in the files.

These three arrangements indicate the usual methods adopted for filing drawings and similar material. The choice will depend largely on the amount of material to be filed, its size, the frequency with which it will be used for reference and the amount of money available for the purchase of fixtures.

## FILING METHODS FOR "HOME DRAWINGS"

The two general subdivisions of home drawings have already been indicated. The subdivision of maps and other paper drawings is of maximum importance at a mine, since maps are essential to efficient operation. The drawings to be filed under this class vary from very large to very small; they differ in material, in importance and in frequency of use. Many of them, especially maps, are for final reference purposes only and will be handled at relatively infrequent intervals. They require careful preservation and should be protected as far as possible from the injurious effects of light and dust. Filing in rolls is the most satisfactory method for disposing of this class of material, and where possible, a special cabinet of pigeonholes should be obtained for the rolls. The length of such a cabinet should be determined by the width of the largest map which will probably be filed in it, about 6 ft. being a usual length. The pigeonholes should vary in size from about 1 in. square for tracings or other material easily rolled, to about 6 in. square for large mounted maps. The cabinet should have doors at each end to permit better use of the available space. Cardboard or tin tubes are an excellent addition to such a cabinet and should be provided for all important maps. As far as possible, only one drawing should be filed in a roll. Extra-length tracings, as provided under "home drawings—tracings," should be filed with this material in the smallest-sized pigeon holes.

The two headings under the subdivision tracings and blueprints will usually, and should always, be filed separately. For tracings the injury due to folding prevents the use of that method of filing, while the quantity of material to be filed will prevent the use of the roll method in all but the smallest offices. Flat filing, either horizontal or vertical, is therefore almost imperative. I prefer to file tracings in drawers of suitable size, owing to the difficulty of keeping the tracings flat when filed vertically. Where drawers are used, the sheets should be filed in consecutive order with the latest number on top. Full-length and half-length sheets should be filed in separate drawers. Shallow drawers are recommended, since with deep ones there is the possibility of the drawer becoming so overcrowded that the lower tracings may be torn in trying to remove them.

## FILING BLUEPRINTS AND INDEXING

For blueprints the quantity to be filed prevents the use of the roll method and the choice between folded and flat filing will depend very largely on local conditions. Half a dozen vertical document files costing about a dollar each,

in a case made in the mine carpenter shop, will provide ample capacity for several hundred prints at a minimum cost, and expansion can be gradual and equally inexpensive. At a small mine, especially during the prospecting stage, where prints are few and are referred to at comparatively infrequent intervals, where rapid reference is unnecessary and folding and unfolding are not a burden, such a document-file system will prove entirely satisfactory. In a large office, with thousands of prints on file, where a number of engineers and draftsmen are constantly employed and many prints referred to daily, rapid reference and identification become necessary and flat filing in drawers or in vertical cabinets becomes essential to the most efficient work.

In the average case, between these two extremes, the choice will depend on the money available and on personal preference. Where the greater expense is at all warranted, I prefer flat filing in drawers for "home" prints. The drawers should be roughly classified, each being reserved for a certain subject—for example, hoists in one, pumps in a second, drills in a third, and so on—thus making it easy to locate any general group of prints without refer-

ence to the index. As with tracings, shallow drawers are recommended, and they should never be allowed to become overcrowded. A  $\frac{1}{2}$ -in. round bar, fitted in slots at the sides of the drawer near the front, will greatly increase the capacity and will prevent the prints from catching as the drawer is opened. The reference files should contain but one print of each drawing, and this should show the latest information available. It should be distinctly marked "office copy," and its removal from the office should be prohibited.

If the folding method of filing be adopted, all prints should be folded to approximately the same size. A folding templet, of either brass or steel, will be a great

		6"			
A	Title: 24"x48" Double Drum Hoisting Engine				Drawing No. 500,363
	Frame Details Scale: $1\frac{1}{2}'' = 1'$				Case No. A
Received from: Manufacturing Co.		File No. 6			
Used for: Shaft No. 5—Hoisting Engine				Maker's Dwg No. 13,627	
Issue No.	1	2	3	4	
Description of Alterations					
No. Received and Date:	3-4/15/10				
Sent to:	Sent	Ret.	Sent	Ret.	Sent
Machine Shop	4/17/'10				
Construction Dept.	4/17/'10	10/2/'10			
Copper Mining Co. Foreign Drawing Record Card					

FIG. 9. RECORD CARD FOR FOREIGN DRAWINGS

ence to the index. As with tracings, shallow drawers are recommended, and they should never be allowed to become overcrowded. A  $\frac{1}{2}$ -in. round bar, fitted in slots at the sides of the drawer near the front, will greatly increase the capacity and will prevent the prints from catching as the drawer is opened. The reference files should contain but one print of each drawing, and this should show the latest information available. It should be distinctly marked "office copy," and its removal from the office should be prohibited.

It is the practice in some offices to preserve one print from each issue, usually fastened along one edge to prints of later issues. In my opinion, this is unnecessary if the method of alteration shown in Fig. 5 is adopted. The original, as well as the superseding figures, are plainly shown and reference to but one print is necessary to show the entire evolution of the drawing. It may be argued that alterations made in this way seriously impair the appearance of the drawings, but drawings are usually

convenience. Where vertical document files are used, more accurate classification by subjects may be obtained, as compared to filing in drawers, owing to the reduced capacity of the separate filing units. With vertical letter files used without subdivision guides, this advantage does not exist, since such a file will usually hold more prints than a drawer. For vertical filing the print should be folded with the back out and with a form showing the drawing, case, file and issue numbers stamped in the upper right-hand corner and filled out before filing. These data, together with those on the index cards, will show all the necessary general information regarding the print without unfolding.

Two separate card indexes are required by this system of filing—a consecutive number index and a subject index. The 5x8-in. drawing-record card (Fig. 7) is used as the consecutive-number index card and shows the complete history of the drawing, including by whom made and handled and to whom sent and when, etc.

The 3x5-in. card shown in Fig. 8 is used for the subject index. Aside from the title and the drawing, file and drawer numbers, it contains no information regarding the drawing itself, all such information being shown on the consecutive-number index card. The subject-index card may be used in two ways—either as a classified index as shown in the example, or as a single-drawing index using the bottom of the card for cross-references. By either use it answers the double purpose of a subject index and a cross-reference index, greatly facilitating the finding of related prints.

With these two indexes, properly kept up to date, any drawing on file may be found readily by either number or subject. The subject-index file should be guided and sub-guided, using much the same system of subdivision as shown for survey notes in Fig. 1. Where prints are classified in drawers or files according to subject, a subject index may seem superfluous, but it will prove to be a great time saver. It is a very poor subject index that will not much more than pay for itself.

#### HOW TO FILE FOREIGN DRAWINGS

The term "foreign drawings" is used to designate all blueprints and similar material, obtained from sources other than the company, that come to the engineering department for classification and filing. The wide range in subjects and the difference in character, size and material make these data difficult to file satisfactorily.

One great essential in filing foreign drawings is to keep this material distinct and separate from home drawings.

In a general way, the system of filing outlined for home blueprints may be employed to advantage for foreign drawings as well. Simple filing and double indexing, by number and by subject, are the elements of the system. All foreign drawings should be distinctly marked "Foreign." This is usually done with a large-letter rubber stamp in at least one prominent place on each copy. With such a stamp on both the face and back of a drawing there can be little excuse for confusion.

The advantages of the various methods of filing have been discussed already. Two of the reasons—uniformity of size and frequent reference—advanced for the choice of flat filing in drawers for home drawings do not apply to foreign drawings. Uniformity of size is impossible with any amount of material to be filed, and any attempt to secure it for flat filing will be a failure and a waste of time. Foreign drawings will not be referred to with the same frequency as home drawings, except over short, irregular periods. For these reasons the greatest objections to folding disappear, while its advantages are accentuated; and folded vertical filing in either letter files or document files is recommended for foreign material. I prefer document files because they are smaller units permitting better classification, are fully as easy to handle, and are considerably cheaper unless bought in large and elaborate cabinets.

The fourth means of distinguishing foreign from home drawings applies to the index cards only. A different color, distinct in artificial as well as natural light, should be used; and whatever color is selected should be used for all cards covering foreign drawings.

The card used in the consecutive index for foreign drawings is 4x6 in. and is similar in form and in use to the one used for home drawings. The subject-index card for foreign drawings differs in color only from the card

for home drawings. Cross-reference between these two classes of drawings is possible without confusion when the large difference in drawing numbers is used. An example is shown in the table of references, Fig. 4.

A foreign drawing on its receipt is examined by the chief engineer, who, before passing it on to the file clerk, determines the consecutive number from his records and fills in all information, not obtainable from the drawing itself, required by the foreign-drawing index card, Fig. 9. The drawing, with index card attached, passes to the file clerk, who stamps the date, a form showing the drawing, case, file and issue number, and "Foreign" on the face of each copy received and "Office copy" on that selected for the files. He then fills in the drawing number and the case and file letters on the face of each drawing, folds the prints to the proper size and repeats the numbers and letters in the upper right-hand corner. He finishes filling in the index cards, files the office copy and the cards, and sends the copies for distribution to the proper parties.

#### THE USE OF "FOREIGN" DRAWINGS

Should reissued prints of foreign drawings be received they are handled in exactly the same way. The new prints are sent to the proper parties and the old prints collected, as far as possible, and either returned to the maker or destroyed. Should any marked alterations in design be shown, it is usual to retain the office copy of each previous issue for reference. These prints, distinctly marked "Superseded," should be fastened to the print in force, so that a complete record may be preserved without confusion. This applies to foreign drawings only.

The great value of foreign drawings, especially to the drafting room, is often overlooked or underestimated. Makers' drawings of engines and similar machinery are especially valuable. These drawings are of great assistance to the engineer and draftsman when repairs are necessary or alterations desirable. They frequently show dimensions and details which otherwise could be obtained only after considerable field work, and even then might not be absolutely accurate. A serious effort should be made to secure working drawings of all new installations at the time of purchase. It is the excellent practice of a number of firms to require a full set of such drawings to be furnished as part of the contract. Most manufacturers willingly furnish such a set of prints, usually under a provision that they shall not be used for reproduction, except as required for repairs.—*The Engineering and Mining Journal*.

#### *The Equipment Number*

Following our usual custom at this period of the year the July 21 issue of Coal Age will be devoted almost exclusively to descriptions of mine equipment. A selected series of articles are already in hand, or in course of preparation, which will make this issue a standard reference on the subject of equipment along mechanical lines during the past 12 months.

It is our earnest desire to make this issue as complete as possible, and this can only be accomplished by the hearty cooperation of all our readers.

*Contributions for this issue should be in our hands by July 10.*

## Drastic Recommendations of the Federal Trade Commission

**SYNOPSIS**—A brief summary of the Federal Trade Commission's exhaustive report on the coal situation. Government control, if not direct ownership, of both mines and transportation facilities is the salient feature of the report. Drastic character of the recommendations is significant evidence that the commission is fully awake to the gravity of the situation.

The recent report of the Federal Trade Commission puts the fuel situation squarely up to the coal operator and the transportation interests. If the latter have the ability to find and apply for themselves a remedy, well and good; if not, the commission points to one within the power of the Government. The entire report is so lengthy (the Vice President said it would fill a whole volume of the *Congressional Record*) it is impossible to cover even the fuel part in detail, but there are a few leading features that are of supreme interest to the coal industry.

The commission, by its investigation, makes it clear that there must be prompt, effective coöperation among the railroads (the owners of coastwise transportation are included), the operators and the distributors. With much emphasis it is stated that a coal shortage would spell national disaster and that something like that is impending under present methods of control. The root of the bituminous shortage is found in the faulty distribution of coal cars. None can dispute the need here for radical action. New England, for instance, is finding to its cost the great handicap it suffers through dependence to such great extent on the car-supply two great trunk lines are able to spare from territory directly served by their own systems.

The Interstate Commerce Commission, with broad powers, has somehow failed to get adequate service for all sections. When it has sought to aid a given area, the remedy has usually worked to the disadvantage of another, doubtless unavoidably, and neither through lack of good intention nor any but broad-minded use of its authority. The country has grown so fast that facilities have not kept pace with it. Large coal consumers, for instance, have not equipped themselves to unload cars promptly. At most of the mines the antiquated practice of mining each day only what can be carried away in the cars furnished still persists. Certainly neither the railroads nor the Interstate Commerce Commission can afford much relief to plants or mines that are slow to help themselves. The trouble is deeper than that.

These conditions are in view when the Federal Trade Commission reports its belief "that the coal industry is paralyzing the industries of the country, and that the coal industry itself is paralyzed by the failure of transportation. There are enough coal cars in the country, but not enough are delivered to the mines, and these cars are not moved to the point of consumption with the greatest expedition nor are they promptly discharged."

The important recommendations, verbatim, are as follows:

First—That the production and distribution of coal and coke be conducted through a pool in the hands of a Government agency; that the producers of various grades of fuel be paid their full cost of production plus a uniform profit per ton (with due allowance for quality of product and efficiency of service).

Second—That the transportation agencies of the United States, both rail and water, be similarly pooled and operated on Government account under the direction of the President, and that all such means of transportation be operated as a unit, the controlling corporations being paid a just and fair compensation, which would cover normal net profit, upkeep and betterments.

It is stated in the report that the usual spring and summer accumulation of fuel at points distant from the mines is not now taking place, but that these stocks must be accumulated during what remains of the summer "unless the country is to face next winter a most serious and an irreparable situation."

In defense of its remedy, the commission says:

If the producer at each mine were paid his full cost of production with allowances for depletion, maintenance, upkeep and all the usual items, and to this were added a fixed and uniform net profit a ton, with due regard to quality, the coal thus produced, at widely varying costs, if pooled, could be sold through the Government at an average and uniform price, quality considered, which would be tolerable to the consuming public, and at a price much lower than could be fixed if an effort were made to fix a uniform price to the producer.

The railroads of the country, if operated as a unit, and on Government account, could be used to transport coal and other products by the most direct route to their point of destination, and the efficiency of the roads themselves, existing rolling stock and motive power would be vastly increased.

All receipts from all rail and water transportation agencies being pooled in the hands of the Government, and all expenses of operation being paid from the common fund, each individual company should be paid a just compensation which might be measured by the average annual net profit and expenditure for maintenance and betterments for the five-year period prior to the war.

The operation both of the mines and of the transportation agencies could be carried on by the present employees and officials, and after the war they could be returned unimpaired, to private operation. The rolling stock of railroads, operated as a unit, could be mobilized so as to care for the shifting seasonal demands.

"Extraordinary and revolutionary" is the comment of much of the press. Mr. Harris, chairman of the commission, dissents to the provision referring to payments for upkeep and betterments as opening the door to formidable possibilities. Surely it is a tremendous plan of Governmental control of mines, railways and water lines.

The commission further points out that the acute shortage of bituminous coal, and therefore of coke, has greatly increased the demand for anthracite. Through its anthracite committee the commission is now trying to get exact data on this phase, with a view to limiting so far as possible domestic sizes to domestic or accustomed use. Railroads in Pennsylvania, for instance, that have habitually used bituminous have switched to anthracite, because of its lower cost under present conditions. It was in reference to these implications that the commission is not yet in possession of all the relevant facts, that the *Brooklyn Daily Eagle* said, editorially, "Assuming that to be true, the 'findings' should have been withheld, pending the requisite enlightenment!"

Five distinguished railway men, of great ability, have been laboring hard to find a solution. Can they be trusted to devise ways and means, rather than leave so technical a problem to a yet-to-be-appointed Government bureau that must spend some more valuable time "investigating"?

# An Analysis of the Tidewater Pooling Plan

EDITORIAL CORRESPONDENCE

**SYNOPSIS**—*The proposed pooling arrangement is the most drastic regulation of the coal industry that has ever been attempted. The accompanying symposium outlines the general scope of the plan and the sentiment regarding it at the chief loading ports.*

Fairfax Harrison, president of the Southern Railway System, and chairman of the Railroads' War Board, has sent the following explanation to the trade through Chairman Arthur Hale of the executive committee of the Tidewater Coal Exchange:

An agreement reached June 21 by all shippers of tidewater bituminous coal to pool their coal at the ports of New York, Philadelphia, Baltimore and Hampton Roads, will, it is estimated, effect such a saving in the use of coal cars as to enable the railroads to haul to these ports 6,640,000 tons more than they did last year.

To manage the bituminous coal pool, the shippers have organized a Tidewater Coal Exchange, with offices in Washington, and with Rembrandt Peale, of New York, as general commissioner. An executive committee is composed of Arthur Hale, vice-president of the Consolidation Coal Co., chairman; S. P. Hutchinson, president of the Westmoreland Coal Co.; E. B. Chase, of the Berwind-White Coal Co.; L. A. Snead, sales manager of the White Oak Coal Co., and Mr. Peale.

## BOSTON

Boston coal factors express themselves more than willing to coöperate in every way with any measures the Federal authorities may take that have for their object improved car-supply and a speeding up of deliveries all along the line. This applies to all the details of pooling now contemplated. The local representatives feel very strongly that any move by any possibility helpful is decidedly worth trying. To them a pooling arrangement at Hampton Roads is nothing new. For years the larger shippers have had "borrow and loan" accounts with other shippers of the same grades, and in substance the Government is now only going to enforce what has long been the voluntary practice of New River and Pocahontas agencies. It has been a matter of trade courtesy, and subject from day to day to each merchant's individual plans as to loading. Of course, there was not too much regard for the interest of the railroad in the use of cars or for the benefit of the trade as a whole, but in the main it has proved an advantageous workable arrangement.

The objection that comes first to the lips of every coal man here is the premium the "pool" is likely to place on careless preparation. True, the authorities promise inspection that will meet this objection, but there is none so effective as the operator's inspection of his own coal, in which he takes an honest pride because it is as his output that normally it reaches the market. All New River is proximately of equal grade if properly cleaned. It is the Navy Department, for instance, that has always drawn a sharp line between different mines, basing it on percentage and fusibility of ash and the presence of sulphur, and that all means preparation at the tipple.

There is also the feeling there will be great difficulty in working out cargoes on the various allotments of the Navy requisitions. Certain mines, as already noted, are excluded from the Navy's acceptable list. Suppose a shipper of New River coal, commonly accepted as such in the open market, has no output physically acceptable to the Navy, and suppose that notwithstanding this fact he has been urged and has agreed to furnish a percentage of the tonnage intended for the Navy. Must A then turn over his output to B for use on B's commercial obligations while B increases his own allotment of "acceptable" to offset? This is only one of many complications that seem sure to arise.

Segregating different grades, in the view of the trade here, will make accounting less intricate but tend to slow up the rapid dumping that is sought. With every shipper loyally supporting the Navy in all it may require there are almost certain to be cases of distress on the part of consumers in this territory dependent upon regular shipments from Norfolk. In Boston, however, there is every disposition to make the "pool" a success. Coal men are sacrificing long-established trade names in the adoption of this plan, and there is genuine hope that it will effect a tremendous saving in the use of coal cars.

## NEW YORK

There is a wide difference of opinion in New York coal circles as to the workability of the pooling arrangement of bituminous coal that goes into effect on July 1, but nearly every miner and shipper believes that eventually it will be successful in relieving the situation.

The most strenuous objection, however, has been made to the method of classification of coals, most shippers contending that the mixing of coals should be done on a basis of analysis instead of according to grades. This has been worked out and a new schedule prepared that will be presented to the proper officials for consideration and possible incorporation in the rules of the exchange.

Another phase of the pool that has been considered by the New York shippers is the effect it will have on consumers whose grates are adapted for the burning of a certain grade of coal. Under the new arrangement these consumers are likely to get a mixture that may or may not contain a cheaper grade of coal and that may be of such proportions as to affect the entire cargo. Some of the miners and shippers who are carrying contracts calling for a certain grade of coal look for strenuous objections from some of their large consumers, which may take the form of united opposition to the plan.

## BALTIMORE

The pooling proposition for tidewater coal is viewed in many ways in the ranks of Baltimore fuel men. The following are the ideas of a few representative coal men:

"I am afraid that a number of the coal shippers here will be made the goats of others. It looks to me as if the fellow with the poorer coals will benefit. The shipper who sends coals down here merely on speculation may also be aided by the situation, although this is not entirely clear. I fear that even under the separate classifications there will be a number of inferior coals foisted upon some of us who produce a uniform standard-grade coal."

"A number of us who have built up a clientele of users of a certain kind of coal in certain classes of furnaces and above certain kinds of grates may be the losers. By pooling we will not be able to supply the same coal consistently to our customers. They, on the other hand, will not be satisfied with results of their fires, the clinkering of grates, etc. Whether they will be willing to pay us our old prices for this pooled coal is a serious question."

"I have heard many opinions on the subject. Some have asked whether they would be required to pool coal even when enough was received to complete a cargo, and were inclined to kick over the traces when told that as far as worked out the plan was to pool all tidewater coal. Others have asked whether the entering of the pooling exchange was an obligation; whether the Council of National Defense plan has the power of law to cover the pooling, or whether it is merely a suggestion; what will be the power of punishment for failure to report shipments, etc. These are being reminded that this is a period of war, not peace; that the Council of National Defense was not created to be an ineffective weapon, and that in any event this is not a time when men should cavil at details, but that all should enter heart and soul into the plan as prepared and leave the working out of the rough places, if there be any, to the patriotism and good common sense of the men in charge in particular and the trade as a whole."

#### PHILADELPHIA

The Philadelphia interests received quite calmly the news that their representatives at Washington had agreed on the pooling of tidewater coal. They realized that under present conditions the adoption of the plan was almost inevitable, but were not saying so in just so many words. There can be no denying the desirability of the plan, and it has been suggested many times in the past ten years. While it is known that the present movement originated with the railroads, yet the fact that the Government agencies supported the plan from the beginning makes it evident that it would be adopted, despite the many doubts as to the workability of the plan expressed in some quarters.

Since the matter was first broached to the bituminous interests numerous conferences have been held with all parties concerned. The shippers on their part have at all times shown an eagerness to fall in line with the Government's recommendations, yet the difficulties to be overcome before the plan can be put in operation were considered by many to be almost insurmountable. Of course, the main friction is over the question of grading the coal, because of the fact that there is not a shipper producing a good grade of coal who wants his product to lose its identity. He feels that the reputation of his coal is almost as valuable as the fuel itself. Many of them point out that thousands of dollars have been spent in advertising their coal, and this would be a dead loss to them if compelled to dump their shipments into a common pool.

Yet in the face of all this it is felt that in order to relieve the increasing pressure for coal supplies relief had to come from somewhere. As illustrating the trouble confronting the persons engaged in trying to learn the number of grades necessary to be provided for, it was brought out at a recent meeting, after much winnowing of a mass of grades, that there remain 44 distinct qualities of coal handled over the local piers. Of course, it

is beyond the bounds of reason to maintain classifications for that number of grades, and further reductions must be made.

The committee has had several meetings, but do not seem able to arrive at any definite conclusion as to the plan, other than that it would be most desirable if it could be adopted; but here too the matter of grades looms up as a barrier. Like the bituminous interests they are extremely anxious to assist the Government in every way possible in the present crisis, and they will certainly go more than half way in their efforts to do so and would no doubt be willing to make many concessions. However, the sentiment of the individual shippers seems to be that it is hardly worth while for them to propose a plan at this time, as they really feel that it is the duty of the large shippers to make the first move, as they have more at stake. Up to this time the leading companies have not openly taken any action or expressed an opinion.

#### HAMPTON ROADS

The success of the plan for the pooling of tidewater coal, like all undertakings of such magnitude, depends largely on the human element. It is no job for a weakling or man of small brain power, involving as it does the trans-shipment of some 18,000,000 gross tons of coal per year. Of course, the main beneficiaries are the railroads. There are three terminals here, the Chesapeake & Ohio Ry., at Newport News, and the Norfolk & Western and Virginian, at Norfolk. The tentative rules issued are on the whole good, but should be revised somewhat along the following lines:

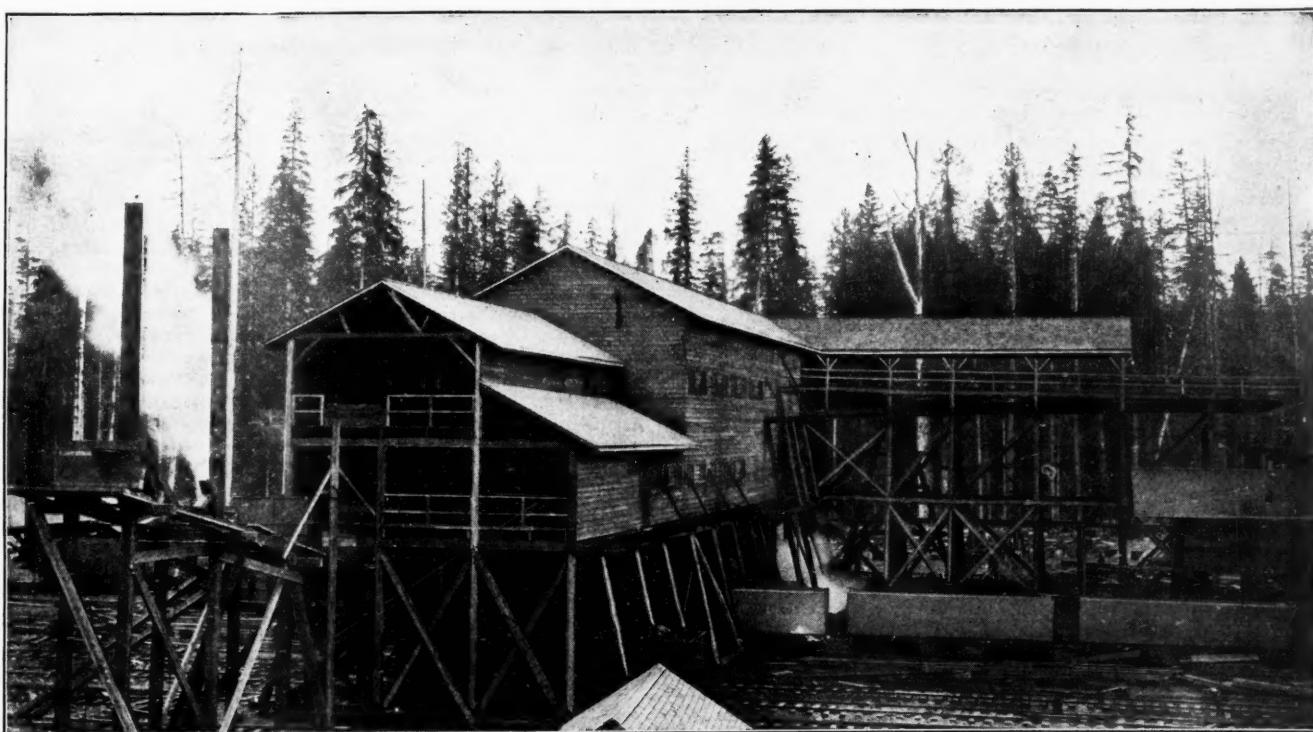
Rule 8. A portion of this rule provides that where a vessel with cargo is to be given bunker coal, the commodity shall be given when advising the expected arrival of the vessel. It is impracticable to give the desired information prior to the arrival of the steamer. It is assumed that it is the plan to give vessels loaded with certain commodities preference in coaling.

Rule 9. The provision prohibiting members loading a vessel if they have insufficient coal in the pool should not be too rigid. The exchange should be allowed a certain discretion in this matter. There should be no delay in loading vessels.

Rule 14. In apportioning demurrage charges on a tonnage basis the apportionment should be in inverse ratio. The member who dumps the smallest tonnage during the month, as compared with his car allotment, should pay the largest portion of demurrage accruing.

Rule 16. Freight charges have been confused with trimming charges in the form of authorization submitted by the carriers covering these charges. At Hampton Roads railroad freight on coal loaded into vessels is always paid by the coal shipper. The trimming charges or loading charges, except in the case of bunker steamers, is always paid by the vessel. The present practice is to collect this charge from the coal shipper, as agent for the vessel, or from the vessel direct. Practically all tidewater coal is sold free on tracks at the terminals, and the trimming charge is paid by the owner of the vessel. Instead of giving the railroads a blanket authorization, allowing them to bill this charge to the shipper, each case should be taken up separately. In a number of instances the shipper who supplies coal to the vessel is not the agent for the vessel and has no means of reimbursing himself if he should advance the trimming charges. In other words, the railroads should collect their own bills.

## Coal Operations in the Far Northwest



A WELL-EQUIPPED TIPPLE AT THE NO. 7 MINE OF THE CANADIAN COLLIERIES CO., AT BERAN, B. C.



SCENES IN THE ALASKAN COAL FIELDS

With a branch road now being built up Eska Creek, the development of the Mantanuska coal field should proceed rapidly.

Above is a well-defined outcrop exposed on the west bank of Eska Creek.

To the right is an opening on Chickaloon Creek, the background of which shows the characteristic country of the Mantanuska coal field.



# Plan for Controlling Coal Prices

SPECIAL CORRESPONDENCE

**SYNOPSIS**—A partial scheme for Government control of the coal industry provides for the appointment of committees of seven coal operators in all the mining states. The plan is international in scope and the Department of Justice has sanctioned its operation within certain limitations.

At the conference of the coal operators from all parts of the country with the Government officials at Washington on June 27, the coal men adopted the following resolution:

Whereas, under the act of Congress approved Aug. 29, 1916, providing that a Council of National Defense be established "for the coöperation of the industries and resources for the national security and welfare, to consist of the Secretary of War, the Secretary of the Navy, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce and the Secretary of Labor," authority is given to the council to organize subordinate bodies for its assistance and coöperation, and

Whereas, pursuant to this authority the Council of National Defense has appointed Francis S. Peabody, chairman of and with authority to appoint a Committee on Coal Production, representative of the coal-producing districts throughout the United States, and

Whereas, a great national emergency now exists in the fuel supply of the nation, and as the coal operators and miners of the United States desire to coöperate as closely as possible with the Committee on Coal Production to supply the necessary fuel, and as the Committee on Coal Production has given the closest and most intelligent study to the necessities now existing,

Therefore be it resolved, that it is the sense of this meeting that a committee of seven for each coal-producing state, and an additional committee of seven appointed by the representatives of the anthracite industry, be appointed by the representatives of each state now attending this convention to confer with the Committee on Coal Production of the Council of National Defense to the end that production be stimulated and plans be perfected to provide adequate means of distribution, and that further these committees, with the approval of the Committee on Coal Production, fix immediately a fair and reasonable price on coal f.o.b. cars at mines in each district, and

Be it further resolved, that this meeting pledges itself to furnish the coal at the prices and for the time so fixed.

The following price-fixing committees have been named:

**Alabama**—M. W. Bush, H. T. De Bardeleben, W. C. Adams, S. L. Yerkes, W. E. Henley, James Bonnyman, of Birmingham, and E. F. Roden, of Marvel.

**Colorado**—D. W. Brown, S. M. Perry, C. L. Baum, S. S. Murphy, G. F. Bartlett, J. Childberg and H. F. Nash.

**Illinois**—George B. Harrington, Chicago; W. J. Spencer, Canto; H. C. Adams, Chicago; Thomas T. Brewster, St. Louis; D. W. Buchanan, Chicago; H. H. Taylor, Chicago, and Dr. F. C. Honnold.

**Indiana**—A. M. Ogle, Terre Haute; J. K. Dering, Chicago; W. S. Bogle, Chicago; W. J. Freeman, Terre Haute; M. L. Gould, Indianapolis; H. A. Huskey, Chicago, and P. H. Penna, Terre Haute.

**Kentucky**—E. I. Helburn, Middlesboro; John J. Coyle, Curnow; Eugene McAuliffe, Alex Bonnyman, Knoxville; F. F. Floyd, Knoxville; J. H. Wheelwright, Baltimore, Md.; Samuel W. McComb, Harlan, Kentucky.

**Maryland**—J. H. Wheelwright, Baltimore; A. W. Calloway, Baltimore; Howard Brydon, Piedmont, W. Va.; T. B. Davis, New York; George Watson, Fairmont, W. Va.; T. M. Dodson, Bethlehem, and J. S. Brophy, Frostburg.

**Ohio**—Edwin L. Jones, Jackson; Fred Ebersbaugh, Pomeroy; E. M. Poston, Columbus; G. C. Weitzel, Columbus; S. H. Robbins, Cleveland; T. K. Maher, Cleveland; C. E. Maurer, Cleveland.

**Pennsylvania (Bituminous)**—Rembrandt Peale, New York; S. H. Wigdon, Philadelphia; T. H. Watkins, New York; James P. Walsh, Pittsburgh; J. T. M. Stoneroad, Pittsburgh; A. R. Hamilton, Pittsburgh; J. C. Boydton, Somerset.

**Virginia**—C. E. Bochus, New York; D. D. Hull, Jr., Roanoke; John L. Kemmerer, Philadelphia; Otis Mauser, Big Stone Gap; George L. Carter, Coalwood, W. Va., and Webb Willett, Norton.

**West Virginia**—C. H. Jenkins, Fairmont; J. H. Wheelwright, Baltimore; J. R. Thomas, Charleston; T. B. Davis, New York; W. D. Ord, Landgraff; R. H. Gross, Boston; E. W. Knight, Charleston, and D. R. Lawson, Fairmont.

**Wisconsin**—Peter Reiss, Sheboygan; W. W. Broughton, Minneapolis; E. A. Uhrig, Milwaukee; E. E. Heiner, Minneapolis; J. A. Maher, Minneapolis; E. N. Saunders, St. Paul; H. E. Smith, St. Paul, and W. H. Grovesman, Minneapolis.

**Arkansas**—J. H. Puterbaugh, McAlester, Okla.; W. P. Hawkins, St. Louis; Robert A. Young, Greenwood, Ark.; H. N. Taylor, Kansas City, Mo.; M. M. McWilliams, Spadra, Ark.; W. C. Shank, Kansas City, Mo.; J. R. Barr, Bonanza, Ark.

**Iowa**—Edward Smith, chairman, Des Moines, Iowa; W. W. Oliver, Centerville, Iowa; W. W. Wilson, Ottumwa, Iowa; Homer H. Harris, Ottumwa, Iowa; Joshua Norwood, Des Moines, Iowa; John Shuller, Des Moines, Iowa; Phynes, Albia, Iowa.

**Kansas**—John Mayer, chairman, Kansas City, Mo.; J. F. Flemming, Kansas City, Mo.; C. P. A. Clogh, Kansas City, Mo.; Ira Clemens, Pittsburgh, Kan.; Charles Spencer, Pittsburg, Kan.; L. J. Lawrence, Pittsburg, Kan.; James Hamilton, Weir City, Kan.

**Missouri**—F. W. Lukins, chairman, Kansas City, Mo.; John Bovard, Kansas City, Mo.; H. G. Kellogg, Kansas City, Mo.; I. Pickering, Richmond, Mo.; J. C. McGrew, Jr., Lexington, Mo.; Seth Serat, Kansas City, Mo.; Tom Bowen, Windsor, Mo.

**Oklahoma**—James Cameron, chairman, Henrietta, Okla.; J. F. Emmert, Kansas City, Mo.; Charles Price, Henrietta, Okla.; D. J. Gordon, Oklahoma City, Okla.; J. R. Crowe, Jr., Kansas City, Mo.; James Duncan, Alton, Ill.; T. B. Drew, McAlester, Okla.

**Texas**—W. K. Gordon, chairman, Thurber, Tex.

**Pennsylvania (Anthracite)**—W. J. Richards, C. F. Huber, W. N. Williams, P. C. Madeira, S. B. Thorne, John Markle, S. T. Peters. **Additional Members**—W. N. Truesdale, E. E. Loomis and Joseph Dickson.

The Department of Justice stated that an international association of coal producers composed of the coal operators of the United States and Canada, with headquarters at Washington, D. C., managed by a secretary and counsel, under the direction of an executive committee elected annually by a convention of the operators, would be lawful. The department outlined the activities of such an association as follows:

**Publicity**—Handling such matters as a coal bulletin prepared daily from telegraphic advices of prices from all coal-mining sections and given to the Associated Press for publication throughout the country the following morning; furnishing news bulletins as to prices, production and all matters of interest to the daily press and to the coal journals; publicity campaigns, etc.

**Statistical Matters**—Handling such matters as uniform cost accounting, improved methods, production, etc.; preparing reports to Government departments; obtaining data from various Government departments and compiling same for use of members.

**Legal Matters**—Handling such matters as government contracts, uniform contracts with railroads, public utilities, municipalities, etc.

**Car Supply**—Mine-rating cases before Interstate Commerce Commission and Federal Trade Commission; presentation of matters to Congress and state legislatures; preparation of income-tax returns; enforcement of state labor laws; workmen's compensation acts; safety requirements, insurance, etc., and federal laws.

A Credit Bureau national in scope for the coal dealers.

Such an association would be entirely within the law and would be similar to scores of others now operating for the benefit of other industries. If we are to have Government regulation of the coal industry, such an association will be indispensable.

## The Labor Situation

### General Labor Review

The only area of the United States where there are strikes of any extent is central Pennsylvania, where the mine workers have been idle over thirteen months. In western Kentucky the newly organized threaten a strike for an increased wage, and in Colorado, where the men are also newly organized, they desire a strike, apparently to promote harmony.

It seems a shame that these men should have to go on strike for such a purpose. But then the only harmony they know is a harmony like that between the lady and the tiger—with the lady inside. The only peace these men understand is one in which the union rules. It is not a higher wage scale or better conditions, but the peace of the union that they want.

Alabama is fast becoming unionized. John P. White's visit is said to have added 3000 to the union ranks. Partly to meet this, perhaps, and partly to hold its men at home, Alabama has raised wages 10 per cent., to take effect July 1. It is said this will cost \$150,000 a year to the operators. In West Virginia the miners of the Kanawha region were advanced 10c. a ton, and the day workers 60c. a day. Washington state operators have just granted their union mine workers a big increase in wage.

In Canada, where the Administration has swept the operators aside, it will be interesting to watch the Government take hold and try to make the "willful men" do their part by the country. What the union and operators fail to do perhaps can be achieved by Ottawa. In South Wellington, B. C., by a vote of 133 to 10, the mine workers decided to come out on a general strike should conscription be put in force.

In Nova Scotia the Provincial Workmen's Association and the United Mine Workers of Nova Scotia have formed another organization appropriately termed the Amalgamated Mine Workers of Nova Scotia. The first meeting was held June 15. John K. Morrison, of Sydney Mines, is president, and J. B. McLaughlin, of Glace Bay, is secretary-treasurer.

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### Pennsylvania Sets a Good Example

The anthracite and bituminous mine workers of Pennsylvania are for the most part working steadily. According to Thomas Kennedy, the president of the United Mine Workers in the Hazleton district, mine workers will not be subject to conscription. It is unquestionably true that the Government will find itself severely hampered if it lays its hand on anthracite mine workers. They can do their duty best at home.

There is a real shortage of anthracite production, one arising from shortness of men and not from shortness of cars. The problem is wholly different from that in the bituminous regions, where the mine workers are only working three or four days a week. However, there will be much heart burning if some parts of the coal industry receive less drastic treatment than others, however reasonable the exceptions may be.

When the local physicians in the Tamaqua region attempted to increase their rates, the miners instructed the union to secure the services of three doctors on salary. At the Audenried operations of the Lehigh & Wilkes-Barre Coal Co., in the Eastern Middle Basin, the members of the local unions were ordered by the international officers to consolidate into not more than two locals. At a mass meeting of the mine workers this order was complied with and two locals now replace seven.

The only place where the union is being less energetic in its work than heretofore is apparently in the Somerset County field of Pennsylvania. There are so many places in the United States where progress has been made unopposed, that the union is apparently wearying of the campaign in that county. The status has changed but little since the war. At the Osborn mines of the Youghiogheny & Ohio Coal Co., Wyano, Westmoreland County, the mine workers are striking for the check-off, and at last reports seemed likely to obtain it.

A temporary injunction has been granted against local union No. 1826 on behalf of the Chartiers Coal Co., operating at Canonsburg, Washington County. The local president, Thomas McHenry, and the secretary, Sam Thompson, are restrained from causing, encouraging or influencing a strike among the mine workers. McHenry and Bernard Kelly were discharged by the company for violating the stringent rules of the colliery, which are enforced because the mines are gaseous and danger imminent.

### Western Kentucky Plans a Strike

A strike of the miners employed in the nonunion mines of Hopkins, Union, Webster, Christian and Henderson Counties, in western Kentucky, was called on Tuesday, June 19, at a convention representing the mine workers of the district. The strike is scheduled to take place on July 3 unless a satisfactory settlement should be made with the employing operators before that date. It was reported by the union that the resolutions which called the strike were adopted unanimously.

There are about 12,000 miners in the district, of whom the union representatives claim to have organized 9500, although there is a much more conservative estimate which suggests that about 3500 have been organized. The efforts of the organizers began last fall. Some time ago, it is stated, the mine workers, through President John P. White, called on the operators to meet them at Madisonville for a conference. The operators are reported to have declined to accede, whereupon the locals selected instructed delegates to the convention with the result stated.

The case against several of the organizers at the mines of the West Kentucky Coal Co., mentioned in the issue of June 16, has been decided by Judge Walter Evans against the defendants Sam Tosh—or should it be Doss?—and George Overyby. These men were found to have violated the terms of a perpetual injunction issued by the United States District Court 10 years ago. Tosh and Overyby were given 60 days' imprisonment in the Daviess County jail at Owensboro, Ky., and fines of \$250 were laid on both. Writs of error were taken out and the defendants have been released on bail. The United States District Court of Appeals at Cincinnati will hear the appeal.

The Stearns Coal and Lumber Co., in the southeastern part of the state, has granted a fourth war bonus. The increase this time amounts to about 5 per cent. on all mine and day labor.

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### Deplorable Condition in Canada

The mine workers in western Canada show the deplorable effect of the voluntary enlistment system. The slackers, whom nothing can please, who will not even work at the arts of peace, have matters in their own hands, for the patriotic men are not at home to restrain them, but are dying at the front for the lack of the things that their fellow workers refuse to produce. To these men, who have turned a deaf ear to the call of their country, nothing appeals; neither reason, the call of the international committee of the union nor the appeal of their Government or of the people.

The operators have agreed to give the outside laborers 37 per cent. more than in the contract ended Mar. 31 of this year. The inside laborers have been offered 25.3 per cent. more; the contract laborers 21 per cent. more, the average for all being 28 per cent.

Whether the mine workers would accept this remains doubtful. Their demands tend to increase right along. The contract ended Mar. 31 was twice broken and had to be twice amended to get the men to work. The men will not accept a reenactment of the penalty clause that the operators demand, so the wage scale cannot go to the referendum.

The operators regard the penalty as the only plan by which to keep the men at work. All the men seem to care about is money, and the operators seek to find in the penalty clause the sole working principle by means of which the men can be held to their bargain. The mine workers of western Canada have disgraced their native land almost as much as those who went to war have made Canada glorious.

On June 18 R. F. Green, a member of the Canadian parliament who had been trying to arrange a settlement, left Calgary for Ottawa, despairing of a solution of the difficulty short of Government control. The Government will try its hand now at regulating wages and hours of labor.

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**Strike of Coal Miners in Duchy of Luxembourg**—On June 17 the miners of Luxembourg were reported as having gone on strike recently seeking an increase of pay. The Luxembourg government intervened, but in vain. German troops are on guard and Luxembourg newspapers are not allowed to discuss the situation.

## Editorials

### Lessons from the Butte Mine Fire

The disastrous fire in the Butte, Mont., copper mine, which cost the lives of 100 men, again forcibly brings out the urgent need for more adequate protection against the monoxide and dioxide gases encountered in mining work. Coal engineers may think that this particular catastrophe was due, in part at least, to the inexperience of the metal miners with mine gases. As a rule, the metal mines are more or less free from dangers of this character, though this does not apply to the Butte district, which has been the scene of some of the most expensive and persistent fires in the history of the mining industry. The Butte companies have, further, some of the finest technicians in the world employed on their staffs. Any charges of either incompetence or inexperience may therefore be disregarded.

The chief flaw the coal engineer would find in the reports so far received would be that the loss of life is ascribed entirely to carbon dioxide, whereas it appears likely that the monoxide gas was the principal cause. Thus the official report of the mining company states: "The gases, part of which are almost odorless and are colorless and tasteless, affected the lower workings of the mine, overcoming our workmen before they could be warned or themselves realize the presence of carbon dioxide." And again: "The loss of life was undoubtedly due, in large part, to the deadly action of the insidious carbon dioxide, and many of the employees were probably overcome while at work, without noticing or appreciating the fact that they were being affected."

These descriptions of the effect of gas on the men are typical of carbon monoxide only, since it is well known that carbon dioxide gives a well-defined warning of its presence. On the other hand, this fire occurred in the main downcast shaft, where the bountiful supply of air would present ideal conditions for making the dioxide mixture. It is therefore quite possible that both gases were present in varying quantities, at different stages of the fire, according to how the air currents were changed.

This may seem an unimportant detail in practice, though even this is questionable. In any event it is highly desirable for scientific and research purposes that more accurate information should be available on this phase of the calamity.

■■■

### Segregating Coals Under the "Pool"

Now that some of the men who know the coal business have got together to deal with the current situation, we are beginning to get results. Hitherto, under our competitive system, the high-grade men have been devoting themselves to the special operations or sections in which they as business men were vitally interested. Their patriotic coöperation is needed, and out of their clean-thinking and intelligent grasp we are bound to get the all-important speeding up.

The abuse of car service is one of our most glaring wastes. At all the loading ports coal has been allowed to accumulate to suit the convenience and interest of individual shippers. On this the War Board and its practical advisers have promptly put their fingers. Men with less understanding had said "pool," and "pool indiscriminately"; but the farther-sighted in the business feared the remedy more than the disease. The waste and hodge-podge that would have followed at cargo destination, not to mention other obstacles, would mean nothing to a layman to whom "coal is coal"; but reasons for alarm were abundant. Grades should be segregated, coal men said, in order to make any "pool" workable, in the long run. Out of the conferences, therefore, comes a plan that seems well worth trying.

Instead of all the separate brands and separately designated kinds sent to the Atlantic loading piers, it is proposed to limit the number to 41. That is, 41 different numbers will designate all the bituminous for dumping at all the piers, classified according to a schedule in which mine origin, proximate analysis, probable use and merchantable value have all been taken into account. The coals originating on the Norfolk & Western and the Chesapeake & Ohio railways have been divided into only 7 groups, those on the Virginian Ry. into but 5, the New York Central the same, those on the Pennsylvania R.R. into 15, those on the Baltimore & Ohio into 13, and other roads according to the grades that emanate therefrom.

These classifications will cover all the low and high volatiles and gas-producer grades in run-of-mine, screened and slack, and byproducts besides. At all the piers, whether at Hampton Roads, Baltimore, Philadelphia or New York, "No. 1" will be coal originating at mines on the Navy Acceptable List, whether Pocahontas, New River, Georges Creek or Cambria. "No. 2" is confined to "other low volatiles" at Hampton Roads, just as "No. 9" (coals of B seam that are not on the Navy Acceptable List) is confined to Baltimore, Philadelphia and New York. "No. 30" (gas three-quarter) on the Pennsylvania R.R., however, is limited to a maximum of 1.25 per cent. sulphur, this to prevent serious trouble to gas-producing plants. Other classifications are of like significance and show intelligent and careful discrimination.

Of course, there is bound to be dissatisfaction. Some are never willing to concede their "rights." Whatever improves car supply is a boon to the trade. The proportion of coal men who are out solely for speculative profits is small; the great majority would much prefer even conditions. Imperfections and inconsistencies in the proposed plan for segregating grades will gradually be ironed out. Unpleasant it certainly is for a mine owner who has prided himself on careful preparation to have his coal lumped with that of a neighbor who has been wantonly indifferent. There is complaint, too, of "Rule No. 13," which provides that no shipments under any classification shall be allowed until evidence is fur-

nished satisfactory to the officer in charge that proper provision has been made for bottoms into which to dump the coal. With a little accommodation on all sides objections like this can be met and overcome.

Practical coal men have come forward to manage the "pool." Notwithstanding criticism, we have confidence in their judgment and we look to see the plan given sympathetic support.

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## Postponement of Annual Meeting Mine Inspectors' Institute, U.S.A.

Secretary James W. Paul announces that, by the vote of the executive board, the tenth annual meeting of the Mine Inspectors' Institute of the United States of America, which was to have been held at Indianapolis, July 10-13, this year, has been indefinitely postponed.

This action was taken, after careful consideration, because of the urgent need of all mine inspectors remaining at home in the present status of the war situation. The decision of the board will meet with the hearty approval of the members of the Institute and of the Federal and State governments.

Further announcement will be made, later, in *Coal Age*, and members will be notified by mail when the meeting will take place.

■■■

## Miners' Houses

The construction of miners' houses is too generally conducted on haphazard, happy-go-lucky lines. Where a complete town is to be built, as is frequently the case, the expenditure involved justifies a more careful study of this subject. The enlightened mining administrator is also finding that more liberal expenditures on the miners' houses is apt to bring substantial material returns by promoting favorable labor conditions.

House construction is as much of a specialty and as exact a science as mining, even when applied to the small and moderate priced cottages typical of our mining villages. It involves questions in lighting, ventilation, convenience and innumerable details that the average coal engineer has perhaps never heard of and has certainly never had sufficient experience to pass upon.

Familiarity with this class of building also insures a very material economy in construction. Thus the amateur might fix upon an inside plan dimension of his house, say at 17 ft. 6 in. in the clear, which would probably necessitate 20-ft. material for both floor and ceiling joist, whereas by reducing this dimension to 17 ft. flat it would be possible to use 18-ft. material. This is only one item, and, of course, would be more or less insignificant when applied to a single small house though it would be very material in the construction of a complete town.

It is gratifying to note that specialists are appearing in increasing numbers in this field, and at the risk of being misunderstood we wish to direct attention to the announcement of one of these that has been appearing in the advertising section of *Coal Age*. This particular concern furnishes all the material complete and machine-cut to exact dimensions, ready to erect on the foundations. It is prepared to submit complete plans, specifications, etc., and claims that its method reduces labor costs by one-third.

## Uprooting the Publishing Business

It is right to tax a business—if you don't like the business. If the industry does harm, tax it and put it out of existence. If you wish to check a business that consumes too much labor and eats up the earnings of the people, a suitable tax will put a check on its activity.

But if it is not that kind of a business, don't tax its operations at all. Let it go on unhindered, and if you want to get money to run the war, seize the profits by an income tax, or more directly by an excess-profits tax.

To tax a business to get revenue is like killing a cow to get milk. If the cow is dangerous, kill it; but if it is not, feed it and draw the milk from it periodically. In that way you will find that you will get not one small milking, but several. So with taxation, putting the impost on profits and income leaves the industry whole to produce other profits and more income.

Of late years only the Turk has been disposed to levy any but the lightest of taxes on business, because it is easy to tax out of existence what it takes years to create.

Now that the war has been declared, there are some people who want to put on the publishing business a postage impost to which the industry will be unable to accommodate itself, for it has already had to meet a steady drain in the increased price of paper, ink, coal and cuts.

Why should this business bear so unequal a portion of the burden of the war? Is it because it is harmful business and therefore to be taxed out of existence? Is it because it ministers to luxury and therefore should be compelled to work under a disadvantage? It is not harmful nor is it a luxury. The technical press is educative and advantageous, and at no time is that education and assistance more needed than today. At no time in its history has the press had a better opportunity to do good; at no time has it shown a keener sense of that opportunity than at the present moment.

It does not deserve to be loaded with any new burdens. Let all legitimate and useful businesses share alike in the providing for the needs of the nation. Why conscript the publishing business and let the maker of fold-overs go free?

The technical press is willing to sacrifice itself with the rest, be the excess-profits tax 16 or even 80 per cent. But looking over the ground, it is clear that the proposals for taxation are getting more moderate day by day. It looks as if other businesses might go relatively free and the publishing business be left to hold the bag. Against such discrimination the press must protest.

## The Equipment Number

Following our usual custom at this period of the year, the July 21 issue of *Coal Age* will be devoted almost exclusively to descriptions of mine equipment. A selected series of articles are already in hand, or in course of preparation, which will make this issue a standard reference on the subject of equipment along mechanical lines during the past 12 months.

It is our earnest desire to make this issue as complete as possible, and this can only be accomplished by the hearty cooperation of all our readers.

**CONTRIBUTIONS FOR THIS ISSUE  
SHOULD BE IN OUR HANDS BY JULY 10.**

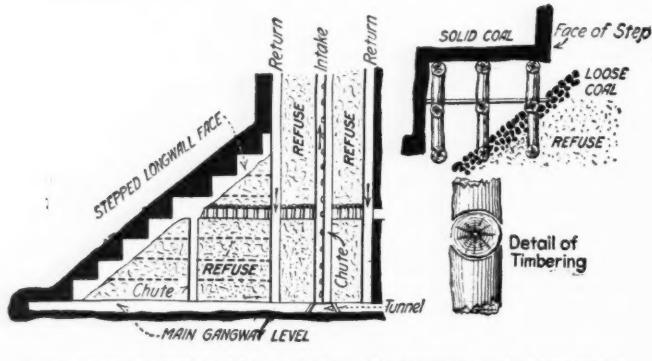
## Discussion by Readers

### Working Contiguous Pitching Seams

*Letter No. 2*—I would prefer to work these two seams, with 6 ft. 6 in. of slate parting between them, in two separate operations. In order to extract the largest percentage of coal, I would work the smaller seam first, employing the longwall advancing system of mining. Owing to the steep inclination of the seams it will be necessary to advance the face in steps. Each step should measure 12 ft. on the strike and 10 ft. on the full pitch of the seam.

The tunnel should be driven in to tap the lower seam. At the end of the tunnel I would drive a triple-entry system up the pitch, making the middle entry 10 ft. wide, with a partition on one side to provide an intake airway, while the remaining portion will form a chute for the coal. The two side entries, each 6 ft. wide, are the return airways for their respective sides of the mine. A gangway level is driven to the right and left of the tunnel, in the lower seam and slate parting. These gangways are 10 ft. wide at the bottom and 8 ft. at the top.

When the pitch entries have been advanced 50 ft. and the gangway levels 30 ft., the longwall face is started



STEPPED LONGWALL FACE ON STEEP INCLINATION

on each side of the pitch entries by taking a "skip" off the rib so as to form a step face 10 ft., measured on the pitch. The slate excavated in driving the gangway levels in the coal and parting is used for packing the first step face above the gangway timbers. When this step has advanced 12 ft. along the strike, another step of the same size is started from the pitch entry, above the packing in the first step.

In this manner four successive steps are made one above the other, the face of each step being 12 ft. in advance of the one above it, so that the miner working one step is in no danger from falling coal in the step above him. By the time the first step has advanced about 50 ft., the distance measured on the pitch to the upper step is about the same, which affords a 45-deg. slant at the longwall face where the coal gravitates to the gangway level.

The general plan of working is shown in the accompanying figure. Every 50 ft., measured on the strike, a permanent chute must be made, so as to allow the coal

from each section to be loaded on the main-gangway level. One miner works in each step and, in a single shift, can advance a 10-ft. face about 4 ft., besides doing the necessary timbering. The slate taken from the main gangway is lifted and packed in the different steps, at night.

In the performance of his work, the miner uses two planks provided with hooks at one end, which serve to hold the planks from slipping off the cross-timbers that support them. The miner standing on these planks starts to cut the coal at the top of his step. If the work was started at the bottom, the coal at the top would be beyond his reach. Also, starting the cut at the top enables the sides to be secured more easily and the work is kept in better shape.

Round timbers are used 10 ft. long and 4 $\frac{1}{2}$  to 5 in. in diameter at the small end. I have indicated the form of timbering the faces of the steps in the small detailed sketch at the right of the figure. The sketch also shows the form of jointing the cross-timbers to the uprights. The cross-timbers should be a little greater in thickness. Where the roof is soft and tends to fall, lagging must be used behind the timbers. As quickly as a permanent chute is started, it must be planked on the gob side and the refuse allowed to pack itself.

It will be understood that the work of gobbing does not interfere with the work of mining the coal. Also, the timbers required are brought to the face by the use of the return airways. The haulage system is very simple, since there are only two gangway levels, the one to the right and the other to the left of the tunnel.

In my opinion, the upper seam can be worked, by the room-and-pillar method, after the lower seam has been worked out and abandoned, or after the face has been advanced a sufficient distance not to interfere with the working in the upper seam.

GASTON LIBIEZ.  
Peru, Ill.

*Letter No. 3*—In working the two seams described by Joseph D. Lewis, *Coal Age*, May 26, p. 930, the upper 9 $\frac{1}{2}$ -ft. seam and the lower 4-ft. seam being separated by 6 $\frac{1}{2}$  ft. of slate parting, I would prefer to drive the tunnel direct to the lower coal and open a gangway to the right and left in that seam. In order to give sufficient width to the road, however, it will be necessary to drive these gangways in both the coal and the slate parting.

Chutes are then opened narrow in the lower seam and driven a distance of 7 yd. before being widened out to the full width of the breast, which should be driven up 8 yd. wide. I would carry two rows of props in each breast, using wide caps to support the slate, which is here assumed to be of moderate hardness.

As these seams pitch from 60 to 75 deg., a battery must be built in each chute and a manway 3 ft. wide carried up on each side of the breast. Only sufficient coal is drawn from the breast to provide the necessary headroom at the face, for the men to stand on the loose coal. In

this manner the breasts are driven up to a limit of, say 150 or 200 ft.

When the breasts have reached the limit, the batteries are opened and sufficient coal is drawn to permit crosscuts to be driven through the parting, 50 ft. down from the faces of the breasts. The upper seam is now worked through these crosscuts, the manways being carried up each side of the breasts, as before.

When the breasts in the upper seam have reached their limit, the coal in the lower breasts is drawn for another 50 ft., and crosscuts are again driven through the parting and another section of the upper seam taken out, as before. This process is repeated until the breasts are worked back to the head of each chute. The coal stumps separating the chutes are left in for the protection of the gangways, until robbing is commenced. In my opinion, the method of working the lower seam first and then the upper, in sections 50 ft. in length, will be safer than to work both seams at the same time.

If the slate parting is weak and falls readily, a different method must be used. The chutes are driven up a distance of 7 yd., as before, and widened out. But, instead of driving the breasts up in the lower seam first, the two seams and the slate parting are all taken out together, the face being advanced in benches, the face in the upper seam being carried ahead of that in the lower seam. This method will require the handling of much slate, but the two rows of props will not be required.

Tomhicken, Penn.

JOSEPH LAWRENCE.

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## Prosperity and Booze

*Letter No. 2*—I was glad to read the interesting letter of Gaston Libiez, *Coal Age*, May 26, p. 929, regarding the effect of the drink habit on prosperity. Some time ago, the booze question was discussed in *Coal Age*, under the title, "Liquor Problem in Mining." We may hope that that discussion did some good. But the present time is most opportune for the coal-mining industry to look its greatest evil squarely in the face.

Like Mr. Libiez, I have given booze a trial and know that there can be no true prosperity for men addicted to the habit of drink. There are many sides to the question, but approach from every side brings us to the same conclusion—there is no room for booze in mining. The habitual drinker is unreliable as a workman; unfaithful in his home duties; untrue to his obligations as a citizen; unfit for service requiring physical strength and endurance; and, finally, unable to make his wages provide necessities for himself and family.

In our town of 15,000 inhabitants there are 32 saloons, which employ 64 men as bartenders, at \$19 a week or \$82 $\frac{1}{2}$  a month, making a total of over \$5000 a month paid in this town for serving liquor over the bar. When one considers that the money taken in by these saloons will average \$800 or \$1000 a day, it is easy to imagine the awful drain this traffic in liquor is to a community.

Now, look for a moment at how this sale of "fire water" affects the local industries dependent on the workers in such a community. For example, consider the loss to a coal operation or other industry whose employees are liable to absent themselves from work almost any day; or coming to work, are wholly unfit to give a day's work for a day's pay.

Not long ago I was visiting a friend in a small city just before the vote was to be taken on the sale of liquor in the place. The opponents of liquor had erected a tent. On one side they had arranged the number of glasses of beer that a moderate drinker would consume in one year. On the other side of the tent was arranged, in strong contrast with the liquor display, the groceries and vegetables that could be bought with the money expended for the beer, in the same time. This was a great object lesson and, while I cannot state the exact effect it produced on the election, the town went dry. Is not this proof that people generally are regarding the manufacture and sale of liquor with greater horror than ever before.

I was glad to learn of the stand taken by the E. E. White Coal Co., in regard to the drink habit among their employees. We can only hope that other large coal corporations will take a similar stand, which would greatly assist in the abolition of this great evil in the state and nation.

To be convinced of the evil of the drink habit in undermining the efficiency and strength of men, one has but to observe how the warring nations of Europe have eliminated this element as being a menace to ultimate victory. If this is true in the struggle on the battlefield, why is it not equally true in the struggle to provide for the daily necessities of life?

One of our leading dailies reports a prominent man in this country as saying that now is a better time—a more opportune moment—for shaking off this dread evil than has ever been offered before in the world's history. Let us hope that effective action will be taken and that our lawmakers will see that the manufacture and sale of intoxicating drinks is prohibited in every state. What proves a financial benefit to a few individuals wrecks thousands of homes and is a menace to the country. Prosperity will always be a stranger in a land where the saloon is dominant.

OSTEL BULLOCK.

Herrin, Ill.

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## Drilling and Shooting Coal

*Letter No. 1*—I was much pleased in reading the excellent article on drilling and shooting coal by F. C. Pick, *Coal Age*, June 9, p. 990. Mr. Pick's article is full of meat and furnishes the readers of *Coal Age* much food for thought, in relation to "safety first" and securing the highest efficiency in the mining of coal.

One of the chief drawbacks in furnishing coal operators with the grade of explosive best adapted to their conditions is the irregularity in the use of the explosives, by miners of all degrees of experience and judgment. Where one miner will obtain uniformly good results with one grade of powder, because he appreciates the necessity of following directions and instructions in regard to its use, another miner will report adverse results, which are largely due to his not obeying the same instructions. As a consequence, there is a great lack of safety and efficiency in the work of blasting coal in mines.

Mr. Pick suggests taking the work of drilling, charging and firing the holes entirely out of the loaders' hands and intrusting it to a special crew of picked men. He states that such a scheme would "reduce to a minimum the number of persons handling powder" and further that "these persons would soon become experts at judging where the holes would be most advantageously placed in

the face, how deep they ought to be and with how much powder they ought to be charged."

By thus standardizing the work of blasting, there can be no question that greater efficiency would result and a larger tonnage of coal be produced with a less expenditure for explosives. There would be fewer accidents from blasting, because the explosives would be handled by trained men.

In the use of permissible explosives, the best results can only be obtained by strictly following the instructions, and not attempting to use a greater weight of powder than the specified charge. This will make for better preparation and furnish cleaner and cheaper coal. Let me suggest, also, that the use of electric blasting caps (iron wire), by the drilling and shooting crew, would not only reduce the cost of material required in blasting, but the work would be performed with a maximum degree of safety.

I quite agree with Mr. Pick's suggestion that the highest efficiency and safety can only be attained through such a drilling and shooting crew as he has proposed. The system, I believe, would cause greater satisfaction among the miners, who would go home at night with no fear that they will find, in the morning, one or more of their shots "hung up," by reason of an imperfect fuse that failed to fire the shot.

In closing, allow me to express the hope that this suggestion of Mr. Pick will be taken up in the endeavor to standardize the blasting of coal, not only in the choice of an explosive adapted to the particular conditions in the seam, but also in the manner in which the work is performed.

I. J. OSBUN, District Manager,  
Birmingham, Ala. Aetna Explosives Co., Inc.

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## Mine-Haulage Proposition

**Letter No. 1**—Referring to the scheme proposed by a Canadian mine operator, for the haulage of coal in a  $4\frac{1}{2}$ -ft. seam pitching with a grade of 4 per cent., described in *Coal Age*, June 9, p. 1012, permit me to say that it is not clear how the empties can be lowered and the loaded cars handled on the single entry he shows, having a grade of 4 per cent., especially when rooms are to be turned off on each side of the entry.

Assuming that he proposes to use a rope for lowering the cars from the present entry level and distributing them in the rooms, it appears to me that the rope would be in the way for the handling of the loaded cars if a gathering motor is used for this purpose. In answer to his question I must say that the proposed system does not appeal to me as practicable or economical.

In my opinion a much simpler method to employ in this  $4\frac{1}{2}$ -ft. seam would be to use an 8- or 10-ton storage-battery locomotive for handling both the empties and the loaded cars, between the faces of the rooms and the foot of the 4 per cent. grade. If power is to be used, to get the coal to the tipple by means of a rope, let this rope be extended to the same point at the foot of the 4 per cent. grade where a permanent parting should be made.

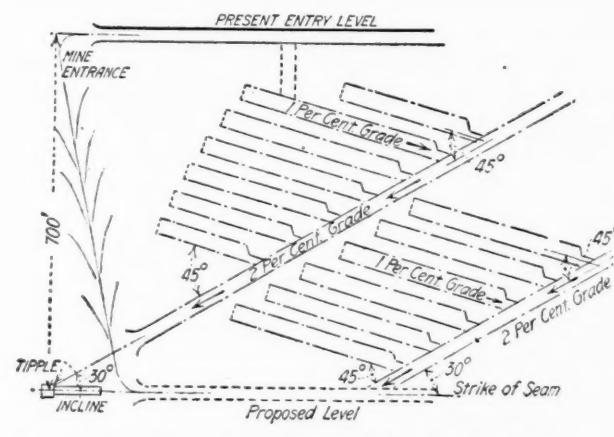
In this arrangement the storage-battery locomotive would gather the cars from all the rooms, hauling them to the parting and putting empties in their place. The number of cars that can be hauled with safety, on this 4 per cent. grade, will depend both on the condition of the road and the size of the cars. The probability is that a

single gathering locomotive will handle all the cars on this entry and keep the trip running to the tipple. In my experience I have had coal hauled on a grade of from 4 to  $4\frac{1}{2}$  per cent., with compressed-air locomotives.

West Leisenring, Penn. R. W. LIGHTBURN.

**Letter No. 2**—In answer to the request of "Operator," *Coal Age*, June 9, p. 1012, for suggestions as to the practicability of his proposed method of haulage in a seam having a pitch of 4 per cent., let me suggest that the most practicable method, in my judgment, would be to drive the main entry in line with the incline leading from the tipple, and on the strike of the seam, as indicated in the accompanying plan. This main entry will correspond to his proposed level and run parallel to the present entry level, which is 700 ft. up the pitch, from the line of the tipple.

In order to facilitate the movement of the coal, both in the rooms and on the haulage roads, I would suggest driving slant roads across the pitch, at regular intervals apart and making an angle of 30 deg. on the left of the main level. Rooms should then be turned by back-switch-



DRIVING ACROSS PITCH TO EASE GRADE

ing from these slant roads, at an angle of 45 deg., as indicated in the figure.

The first slant road can be driven by making a new opening in the seam, in such a position that the center line of this slant will pass through the tipple, as indicated in the figure, or in any other desired location.

The second slant road should then be started off the main level, in a direction parallel to the first and at such a distance from it as will give a suitable length of, say 50 or 60 yd., for the length of the rooms when turned back at an angle of 45 deg. with the slant, and allow also for a chain pillar at the head of the rooms, separating them from the adjoining road.

This arrangement will provide a 2 per cent. grade on each slant road and a 1 per cent. grade in the rooms, which will enable the cars to be handled safely both in the rooms and on the roads. If I understand the conditions, it would seem that this method will prove more satisfactory than the one proposed by "Operator." The coal can be hauled by compressed air or electric locomotives, which will operate with ease on these grades. Any coal lying below the main level can be reached by driving slant roads and rooms on that side of the level and in the same directions, respectively, as previously described.

Ohio Pyle, Penn.

W. R. JONES.

## The Carbide Lamp in Blackdamp

*Letter No. 3*—I have been greatly interested in reading Letter No. 1, regarding the action of blackdamp on the carbide light, *Coal Age*, May 12, p. 843. The statements in that letter do not agree with my experience in the use of the carbide lamp; nor do they seem tally with the usual data given in technical works.

My understanding is that a safety lamp or open light, burning oil, will be extinguished in air containing 14 per cent. of carbon dioxide, when, under normal conditions, the atmosphere would contain about 18 per cent. of oxygen ("Mine Gases and Ventilation"—Beard, p. 85), while 10 per cent. of oxygen (p. 10<sup>1</sup>) marks a fatal atmosphere.

Now, assuming a carbide light is extinguished when the oxygen of the air is reduced to 14 per cent. and a fatal atmosphere is not produced till the depletion of oxygen reaches 10 per cent., I fail to understand the writer's statement that he felt himself going and was obliged to retreat to fresh air, when his carbide light continued to burn in the same atmosphere one hour.

### FATAL EFFECT POSSIBLY DUE TO CARBON DIOXIDE

Let me ask if it is not possible that a fatal percentage of carbon dioxide was present, while the percentage of oxygen was sufficient to maintain the combustion of the carbide light, and the toxic effect of the former gas was felt while the light was still burning brightly.

In regard to the action of blackdamp on the carbide light, I want to give a little of my own experience. On first coming to this country I was given a fallen room on an entry where there were many other rooms in the same condition. As may be supposed, the air current was inadequate for the ventilation of these places. I was using the common oil, cap lamp, but this gave me so much trouble that I bought a carbide lamp.

It was not until several more of the rooms had been reopened, however, that I could keep a steady light. At times my carbide lamp would become so hot and the light so dim, that I was compelled to frequently change the water in the lamp to get it to burn brighter. It must not be supposed that this was a case where the lamp was in "green hands," as I was well acquainted with the carbide lamp.

Only two days ago, an accident occurred which short-circuited the air current near the shaft bottom, and the men were ordered to withdraw quickly from the mine. A short time previous, I had noticed that my lamp did not burn properly. Today, we were again called to work, but found the air bad, it being difficult to keep a light when going into the mine along the intake airway.

<sup>1</sup>The reference to page 10, "Mine Gases and Ventilation," reads as follows: "When no carbon dioxide is present in the air, the oxygen content may fall as low as 14 per cent. before much difficulty is experienced in breathing; but air containing but 10 per cent. is no longer breathable, but will cause death quickly by suffocation."

The toxic effect of carbon dioxide is clearly shown by the fact that the depletion of the oxygen content of air, by the addition of carbon dioxide, produces a fatal atmosphere when the oxygen is reduced to but 17 per cent.; while, if no carbon dioxide is present, a fatal atmosphere is produced only when the depletion of the oxygen reaches 10 per cent. In the former case, there is but 83 per cent. of noxious gases present—carbon dioxide, 18 per cent. and nitrogen, 65 per cent.; while, in the latter case, there is 90 per cent. of nitrogen present. In the former case a depletion of oxygen to 17 per cent. marks a fatal atmosphere; while, in the latter case, a depletion of oxygen to 10 per cent. is necessary to produce the same result.

It is quite doubtful if a carbide lamp is extinguished when the oxygen of the atmosphere is reduced to 14 per cent., as assumed by this correspondent.—Editor.

The fact of the matter was that the fan had only just been started and no examination of the mine had been made before sending the men in for work. This was, of course, in violation of the state mining law.

I found the men waiting on a parting at a considerable distance from the face. Their lights were so dim that they could proceed no farther, although I learned that a few men had gone in to the face, thinking that the air would be better there, which was a mistake. They returned in the dark a few minutes later.

This was a good opportunity, I thought, to test the burning of the carbide light in blackdamp, and I started for my working place, which was about 50 ft. from where the men were gathered. Arriving there, my light went out and attempts to relight it were unsuccessful. However, I decided to remain there a few minutes to observe the effect of the blackdamp on myself. In a short time, feeling sleepy, I retreated to the parting, only to find two more men coming back in the dark, saying that the air was worse at the face than anywhere on the entry.

None of the men appeared to be uneasy, which fact alone convinces me that the carbide light does give a fair warning when the mine air is unsafe. Let me suggest that the mixture referred to by the writer of Letter No. 1 must have contained sufficient oxygen to support the carbide light, while the percentage of carbon dioxide was great enough to produce the toxic effect mentioned by that writer.

MINER.

—, III.

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## Sharpening Coal Augers

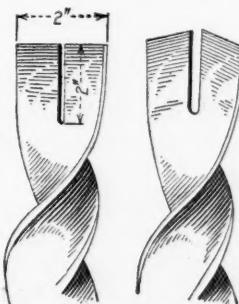
*Letter No. 5*—In regard to sharpening coal augers, I quite agree with the statement made in the inquiry that led to this discussion; namely, "Few blacksmiths are able to sharpen a bit so as to make it cut readily," *Coal Age*, May 12, p. 848. Having had some little experience in the sharpening of all kinds of mining tools, I may be able to contribute something of value in answer to this inquiry.

As has been stated in previous letters, the first step is to heat the end of the auger to enable it to be flattened out with the hammer on the anvil, so as to take

the twist out of the bit for about 3 in. Now, forge the flattened end to a thickness of about  $\frac{1}{16}$  in. and a width of 2 in. Having done this, split the bit with a hot set for about 2 in., as shown on the left, in the accompanying figure. Do not cut out a V-shaped piece or spread the prongs apart as some suggest. The reason for not cutting out the center is that it would make the

center cut too wide and a core would be left in drilling a hole. This core would have to be broken off by the auger, which would retard the drilling. Also, as stated by W. T. Hale, June 16, p. 1049, the prongs will be spread enough in twisting them.

Now, cut the edges of the two prongs to an angle, as shown on the right, in the figure. The next step is to give each prong a twist to correspond to the twist in the barrel of the drill. This is accomplished by laying



the bit over the horn of the anvil in such a manner that the latter will fit the twist of the drill. Then strike one of the prongs so as to bend it and give it the proper twist.

Again, turning the drill over, treat the other prong in the same manner. This operation requires some skill, but, with a little practice, one is able to twist the two prongs forming the bit so that they will appear as though they had never been flattened. The bit when completed should be about  $2\frac{1}{4}$  in. wide. This will cut a sufficient clearance in the hole and facilitate the charging and tamping of a shot.

The bit must now be tempered, to do which it is re-heated and allowed to cool in the air. The temper must not be made so hard but that the bit can be easily dressed with a file. If the temper is so hard that a file will not cut the steel, it is worse than a temper that is too soft. There is something about the handling of steel tools, the knowledge of which is only to be gained through experience and a close observation of the work the tool is required to perform.

GEORGE W. HALLIDAY.

Delia, Alta., Canada.

### Uncertificated Mine Foremen

*Letter No. 1*—I notice that a certified mine foreman of Hazard, Ky., raises the question as to what effect the present war will have on the safe operation of the coal mines in this country, by reason of the possible employment of uncertified men as foremen. He suggests that the discussion of this question be conducted with due regard to patriotism and the necessity that may call many of our certified foremen to the colors, but asks, "To what extent must the safety of the mine be jeopardized or sacrificed by reason of the unavoidable conditions brought about by the war?"

I do not fear so much the danger growing out of the employment of men that hold no mine foreman's certificate. It seems to me that a greater danger may arise from the possible acts of men of pro-German proclivities finding employment in our mines. The presence of such persons in and around the coal mines in this country may be rightly regarded as a menace to safety, under the present condition of the nation's affairs.

In respect to the ability of an uncertified mine foreman who might chance to be employed to take the place of a certified foreman called to the colors, I believe there are many experienced and competent miners, holding no certificate, but who are as well fitted to fill the position of foreman of a mine as the man who holds a certificate granted him by an examining board.

The certificate is little more than a paper certifying that its possessor has qualified for the position of mine foreman by successfully passing the examination given by the board. It is not evidence that the man's experience and judgment in the management of a mine is superior to those qualities in men who have failed to secure a certificate because they lacked the same intellectual attainments as those who have secured the certificate. In other words, in my opinion, the question of holding a certificate of competency is one of minor importance, in respect to the safe operation of mines during the war.

In my opinion, while the war is in progress all mine employees should be subject to the most careful surveillance, and mining property should be amply protected

by guards having authority to halt and search all persons who may be found loitering about the property. Too much caution cannot be exercised in this regard if we would properly safeguard the mines and those working in them. One cannot help but recall the old saying, "All's fair in love and war," and the conclusion is that the position of mine foreman is not one to be coveted at the present time.

LUMEN.

West Leisenring, Penn.

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### Arrangement of Room Tracks

*Letter No. 5*—Referring to the suggestion of hauling coal from two or more chambers, over a single switch laid on the entry, by arranging the track so that coal from an adjoining chamber can be hauled through a crosscut and taken out over a single switch on the entry, permit me to say that I do not agree with W. H. Noone in his statement, *Coal Age*, May 12, p. 843, "A little thought will convince most men that such an arrangement is neither practicable nor economical."

While, at first sight, the proposed scheme does not strike one as being economical, because of the additional labor of tearing up and relaying tracks and switches, it is my opinion, after considerable experience in the use of this system, that it is wholly practical and economical. I will say, however, that in order to benefit by the advantages offered in this arrangement it is necessary to employ only experienced trackmen to lay all roads and switches. It is important that this work be done right in the first place.

My observation leads me to believe that it is customary in coal mining to do everything, in this line of work, in as cheap a manner as possible. As a rule, mine roads in rooms are laid with no care whatever, and it is an easy matter for cars to be derailed. One must remember that to save a dollar today and spend two tomorrow is not economy.

It is quite common practice for the miner to lay his own track in his room, and he does the work as quickly as possible, so as to make good wages. Frequently, he is supplied with inferior material for the purpose, and it is not surprising that poor results are obtained.

I do not mean to say that the same care should be used in laying track close to the face of a room, but it is important that where 8- or 10-ton motors are used the track on which they run should be well laid. The same applies where large coal-cutting machines must be run in to the face. In all such cases, the light 16- to 20-lb. rails formerly used have been replaced by 30- to 36-lb. iron.

I may add that where mule power is used, in the gathering haul, I have seen this scheme adopted under conditions favorable for its use and light rails laid with good results. It is poor policy to use old wooden rails where iron should be employed, merely because they cost a little less. The expense of hauling coal over such track will soon overbalance the cheaper price of the rails. Let me repeat that the proposed scheme is practicable and economical when the conditions are favorable to its use and the track properly laid.

FRED B. HICKS.

Kingston, Penn.

[This letter will close the discussion of "Arrangement of Room Tracks."—Editor.]

## Inquiries of General Interest

### Condemnation of Right-of-Way

I have two coal properties separated by a 60-ft. strip of land, permission to cross which has been denied by the owners. Is there any law that will give me the right to drive an underground slope or entry to reach my coal beyond or must I make another opening to get this coal? \_\_\_\_\_, Penn.

OPERATOR.

This inquiry being submitted to Attorney Arthur L. H. Street, Minneapolis, Minn., elicited the following reply:

1. Entry upon intervening property, without first acquiring the right to do so, would amount to an actionable trespass, entitling the owners to exemplary as well as compensatory damages and injunction against further invasion of the property. Without acquiring the right, by consent of owners or through process of law, a party is no more justified in forcing a passage through another property than were he to attempt to establish a way through a building standing on the land, or to commit any other trespass upon the real estate in question.

2. There is no law that would enable the owner of coal lands separated by an intervening tract to condemn a right to cross such tract. The laws of Pennsylvania are voluminous and not well codified, but after a careful search for constitutional or statutory authority for condemnation in such a case, I find none.

It is true that an act of Apr. 16, 1838, adopted by the Pennsylvania legislature, provides for the establishment of "a private road under the surface of any land, to coal mines," upon the report of viewers finding that "the said road is necessary," and assessing the damages to be paid by the applicant for such right-of-way. But it has been decided by the supreme court of the commonwealth that this law must be treated as part of the general road laws of the state, and that such a road can be condemned only when it connects with a public road. In the case of Keeling's Road, 59 Pennsylvania State Reports, 361, the court speaks of "salutary restrictions laid . . . upon the exercise of the power of taking private property for what is in a great measure a private use."

3. If I have overlooked any Pennsylvania statute purporting to authorize condemnation of a right-of-way, in a case like that suggested by the correspondent, I am of the opinion that such a law, if one exists, is of doubtful validity and open to attack in the courts as authorizing condemnation of private property for private use, in violation of state and federal constitutions.

My opinion on this point is influenced by the language just quoted from the reports of the Pennsylvania supreme court, as indicating that tribunal's adherence to the well settled principle of constitutional law, that private property cannot be condemned for a purely private use, regardless of compensation; and by other decisions in other states, which I will now mention.

In 1912, the general assembly of Virginia enacted a law purporting to authorize any person, firm or corporation engaged in mining, manufacturing and certain other

pursuits, to condemn land to provide passways, tramroads, haulroads, or other means of transportation to and from their works. Just one year ago, the supreme court of appeals of the commonwealth of West Virginia declared this law to be invalid, as purporting to authorize the taking of private property for private use. The court decided that where property to be condemned is to come under the control of private persons or corporations, three conditions must concur: (a) There must be a fixed and definite use of public benefit. (b) There must be urgent public need. (c) Necessity for condemnation must be obvious.

The decision of the California supreme court, handed down in the case of the Amador Queen Mining Co. vs. DeWitt, 73 California Reports, 482, has pertinent bearing here. In rendering its decision that an owner of two mining claims was not entitled to condemn a right-of-way through a tunnel under intervening private land, the court said:

"The mine of defendant is his private property, and it is clear that the plaintiff asks for the condemnation in order that it may appropriate a way through that property for private use. This cannot be done."

In an earlier case, the same court decided that the legislature could not, in the exercise of the power of eminent domain, take private property for a purely private industry, so as to enable one person to build a flume on the land of another to carry off the tailings from his mine, or to enable him to deposit tailings on such land. (Consolidated Channel Co. vs. Central Pacific Railroad Co., 51 California Reports, 269.)

In the case of Salt Co. vs. Brown, 7 West Virginia Reports, 191, the West Virginia supreme court of appeals decided that the fact that plaintiff company owned thirty acres of coal lands which could not be developed without going through defendant's land afforded no ground for condemning a subterranean right-of-way. Although the court fully recognized the right to condemn private land for public use, on payment of just compensation and a clear showing of public necessity, it is declared that "to secure the possession and enjoyment of private property is one of the chief ends of all free governments." Reference is made to the pronouncement of an eminent English statesman, which is as follows:

"There stands the poor man's cottage; the rains of summer and the snows of winter may penetrate its crevices, but the King of England with all his forces, dare not enter that poor man's domain."

There are expressions in other decisions, including decisions of the United States supreme court, that where mining is the paramount industry of a state certain classes of necessary rights-of-way are proper subjects for condemnation, when denial of the right of condemnation would seriously interfere with the general production of minerals, but I find no expression in them at variance with the doctrine of the cases that I have cited, so far as concerns the precise point here involved.

## **Examination Questions**

## Indiana Mine Bosses' Examination

*(Questions Answered by Request)*

*Ques.*—(a) Why is shotfiring in mines dangerous? (b) What system of mining is the most dangerous to shotfirers? (c) As mine boss, what conditions would you maintain in your mine to lessen the dangers to shotfirers and mine property?

*Ans.*—(a) The firing of shots in mines introduces an element of danger, because of the large volume of noxious gases produced, which are often accompanied with flame, forming a blast of great violence that may be projected into a dust-laden atmosphere and cause its ignition, or gas may be ignited by the flame of the shot.

(b) Machine mining is generally considered as being most dangerous in relation to shotfiring, because of the large quantity of fine dust produced by the cutting machines and which is apt to be blown into the air by the force of the blast.

(c) Strict regulations should be made and enforced, in respect to the location and charging of holes and the firing of shots. Miners should not be permitted to carry into the mine more powder than is needed for a single shift. All shots should be inspected by a competent man having authority to forbid the firing of shots that in his judgment are unsafe. Preferably, all shots should be fired by competent shotfirers, who should inspect and charge all holes and fire the same after the men have left the mine. The shotfirers should refuse to fire any shots that they deem to be unsafe.

*Ques.*—In developing a mine, coal produced from a faulty side of the mine sold for \$240, at a loss of 25 per cent. Coal produced on another side of the mine sold for \$240, at a gain of 25 per cent. Was the development a paying or a losing proposition, and how much?

*Ans.*—Let  $x$  equal the cost of producing the coal on the faulty side of the mine: and let  $y$  equal the cost of producing the coal on the other side of the mine. Then, since \$240 represents a loss of 25 per cent., on the one side of the mine,  $240 = 0.75 x$ ; and  $x = 240 \div 0.75 = \$320$ , which is the cost of production of coal on the faulty side of the mine. The loss on this side of the mine is, therefore,  $320 - 240 = \$80$ .

Again, since \$240 represents a gain of 25 per cent. on the other side of the mine,  $240 = 1.25 y$ ; and  $y = 240 \div 1.25 = \$192$ , which is the cost of producing the coal on the other side of the mine. Therefore, the gain on that side of the mine is  $240 - 192 = \$48$ .

Finally, since there is a loss of \$80 on one side and a gain of \$48 on the other side of the mine, the net loss is  $80 - 48 = \$32$ .

*Ques.*—After sealing off a section of a mine to extinguish a mine fire, the section also generating considerable gas, what precaution should be taken and what is likely to occur?

*Ans.*—Every possible precaution must be taken to prevent the formation of an explosive mixture of the gas generated in the section where the fire is located. Many

will prefer to close the intake of this section first and afterward the return end. The effect of this, however, is to form a larger percentage of carbon monoxide generated by the fire when the supply of air is cut off. The carbon monoxide produced increases the explosive condition of the air, which is already charged with gas and renders it more easily ignitable.

The more successful practice, however, under the assumed conditions, is to start the building of the first stopping at the return end of the section, and when that stopping is well advanced or nearly completed, let work be started on the intake stopping. This will permit the access of some air to the fire, reduce the chance of the formation of carbon monoxide and minimize the danger of an explosive mixture being produced in the section behind the stopping, assuming that the fire is located at or near the head of the intake entry. In case the fire is located at or near the head of the return entry, it may be better to start the building of the first stopping on the intake airway and close that stopping first, in order to reduce the formation of an explosive mixture in the section.

Unless proper precaution is taken an explosion is liable to occur by the ignition of the gases generated in the section and those produced by the fire. In any event the work must be done as quickly as possible, using safety lamps exclusively. Vent pipes should be placed near the roof in each stopping and these closed with plugs. This will enable the condition of the air behind the stoppings to be ascertained, from time to time, without breaking down the stoppings.

*Ques.*—If a current of 10,000 cu.ft. of air is passing in the main airway of a mine, how will this quantity divide between the following splits or airways: Split A, 4 x 12 ft. and 800 ft. long; Split B, 6 x 8 ft. and 600 ft. long? Show the calculation.

*Ans.*—The sectional areas, perimeters and lengths of these splits are as follows:

$$\text{Split A; } Xa = a\sqrt{\frac{a}{l_0}} = 1\sqrt{\frac{1}{4 \times 8}} = \frac{1}{\sqrt{32}} = 0.1768$$

$$\text{Split B; } Xb = 1 \sqrt{\frac{1}{3 \times 7}} = \frac{1}{\sqrt{21}} = 0.2182$$

Sum of potentials . . . . . 0.395

The quantity of air circulating in each split is then found as follows:

$$\text{Split A; } qa = \frac{10,000 \times 0.1768}{0.395} = 4,475 \text{ cu.ft. per min.}$$

$$\text{Split B; } qb = \frac{10,000 \times 0.2182}{0.395} = 5,525 \text{ cu.ft. per min.}$$

Total . . . . . 10,000 cu. ft. per min.

## Coal and Coke News

### Washington, D. C.

Numerous events of transcendent and far-reaching importance to the coal industry crowded themselves into the events of the last week in Washington. Some of them are:

1. The recommendation of the Federal Trade Commission that the production and distribution of coal and coke be conducted through a pool in the hands of the government.

2. A recommendation by the same body that the transportation agencies of the country be similarly pooled and operated on government account.

3. Coördination of effort on the part of labor and capital, through the committee on coal production, to increase the production of coal and to make its movement more liquid.

4. Consideration at a formal conference of all interests affected, of means looking to an adequate supply of coal at reasonable prices.

5. Reluctant admission by F. S. Peabody that government officials will take charge of coal mines unless coal men themselves regulate prices.

6. Important hearings before the Public Lands Committee of the Senate on the bill dealing with the leasing of coal and oil lands.

7. Necessity of regulating the manufacture, sale and distribution of explosives clearly indicated at hearings and in committee meetings of the Senate Mines and Mining committee.

8. Consideration by the Senate and passage by the House of the food and fuel conservation bill.

9. Hearings before the Senate committee on Interstate Commerce on the Pomerene bill providing for governmental price fixing for coal and federal supervision of its distribution and storage.

10. Establishment in Washington of the tidewater coal exchange with Rembrandt Peale as commissioner.

The recommendations by the Federal Trade Commission were the more startling to the coal industry from the fact that no such drastic prescriptions were expected. Militating against the unsettling influence of the Trade Commission report was a heart-to-heart statement made by Governor John F. Fort, of the Federal Trade Commission, to those assembled at the pooling conference last Wednesday afternoon. At the very moment Congress was being acquainted with the nature of the Federal Trade Commission's report, Governor Fort was delivering the following message to the pooling conference:

"The Federal Trade Commission is very anxious to get results from this coal situation that will satisfy the government and all consumers. Naturally we want to do it in such a way as will not be any more disagreeable to you gentlemen than can possibly be avoided. We are interested, of course, in the price of coal. I think I ought to say to you gentlemen that I have taken up this pool proposition with the Attorney General. The matter of price agreement was referred to the Attorney General and yesterday I had a conference with him at which we reached a conclusion.

You gentlemen have been afraid, almost, to get in the same room and discuss coal prices, coal pooling or anything of that sort, because you have not known what the consequences might be. Some of you have felt that, when you have innocently done so, you have been misconstrued. That I am not going to discuss. But we did reach a conclusion yesterday. The pooling proposition I have nothing whatever to do with, except to meet with you gentlemen. The Department of Justice had a representative at the last meeting held here at which I also was present, at which, as I understand, you were assured that nobody would be troubled if there was a pool, and I feel quite sure that that is true today.

The question of the price of coal is a very serious one. How to handle it so all will get the same results—I mean every one getting a fair profit, a reasonable profit—let me state it broader than that, a liberal profit—for his coal, is going to be somewhat difficult. I might say this, that any arrangement that you make as

to the price of coal at the mine with the Federal Trade Commission will not be interdicted by the public authorities. We probably will endeavor to take up with you very soon and if we can agree (I am not speaking as to the government coal alone, I am speaking generally) I think we are in a position to state that an agreement with an agency of the government will not be thought to be within the Sherman Law against combinations.

I want to be absolutely accurate as to the statement I have made. I have it in writing. Let me read:

"The Attorney General also failed to see any reason, in the interest of justice, for the Department of Justice to punish, or to attempt to hold parties agreeing with the Federal Trade Commission on prices as criminally guilty of an illegal act. He does not see why the government should prosecute individuals or corporations for an agreement with a government agency on fair and equitable prices for the sale of commodities to the government and to all consumers."

Following Governor Fort's statement came Mr. Peabody's much-talked-of warning which follows in the words taken down by the official stenographer:

"There are a number of railroad men present, here and there are also many coal men present. I simply want to take this opportunity of saying to the coal men here that unless some regulation is made as to the present high price of coal by the coal men themselves, the government is going to step in and do it for them. It is not pleasant for me to say this, but I know what is going to be done. It is much better that we should willingly get together, confer together and confer with the broad-minded men who compose the Federal Trade Commission and discuss this with our cards on the table than for some man to be given the authority to tell us the price for which we are going to sell coal, or if it comes to the worst, for some government official to take charge of one of our mines. I know they will do it if we do not do something ourselves, and I hope all of you who can, will come or be properly represented at next Tuesday's meeting. I did not intend to inject this into you, but you might as well have it now as later on."

Chairman Harris, of the Federal Trade Commission, dissenters from the opinion in which his three colleagues concur. To pool all transportation agencies, he believes, would be such "a tremendous task that this plan should be adopted only as a last resort." Mr. Harris recommends that instead the President be authorized to order transportation agencies to give preference to shipments of coal, coke and other commodities in the order of their importance to the public welfare.

The opinion of the Federal Trade Commission is summed up in the following recommendations:

First, that the production and distribution of coal and coke be conducted through a pool in the hands of a Government agency; that the producers of various grades of fuel be paid their full cost of production plus a uniform profit per ton (with due allowance for quality of product and efficiency of service); and,

Second, that the transportation agencies of the United States, both rail and water, be similarly pooled and operated on Government account, under the direction of the President, and that all such means of transportation be operated as a unit, the owning corporations being paid a just and fair compensation which would cover normal net profit, upkeep and betterments.

It is understood the fuel section of the food and fuel conservation bill came in for painstaking consideration at the meeting. Plans were outlined looking to the stimulation of the coal production by close and cordial coöperation between the operators and their workingmen. The committee reached the conclusion that the continued increase in production, together with the introduction of wise economies in the use of coal and the discontinuance of unnecessary hoarding, will bring prices to their proper level automatically.

Success beyond any anticipation has followed the appeal of the Secretary of the Interior to the mining companies of the

country to encourage the planting of gardens by their employees. "Not only have the mining companies extended gardening among their employees," declares Van H. Manning, the director of the Bureau of Mines, "but they have gone further than the encouragement of the cultivation of vegetables. They are promoting with success a movement among their workmen for the raising of livestock. In addition a country-wide effort is being made to encourage the canning and the preservation of fruits and vegetables.

One of the most popular things about the whole movement is the idea of planting an American flag in each garden. The presence of the national emblem is a constant reminder of the fact that he who produces foodstuffs in this crisis also is serving the flag. In most instances, the mining companies furnished gratis the ground on which the gardens were planted and paid the expense of plowing and otherwise preparing the soil. In a great many cases the companies also furnished the fertilizer."

### HARRISBURG, PENN.

Senate leaders have temporarily called a halt upon the plan to hamstring the State Workmen's Insurance fund. Bills were introduced this week in the House and Senate that would prevent the state from writing compensation business in competition with stock companies.

As a result of the commotion caused, conferences were held between representatives of the fund and leaders of the senate in which it was agreed that the "joker" bills should be amended to meet the approval of the state fund board.

The intent of the legislature of 1915 was that the state fund should be protected for four years, by which time it was estimated it would be able to stand on its own feet. The last legislature made the fund an initial appropriation of \$300,000 and prohibited the managers from drawing upon their premium income. The board in charge of the fund made a request of this legislature for an appropriation of \$250,000 to last the fund until Jan. 1, 1919, when it would automatically become self-sustaining.

The bill making the amendments contained two jokers. They did not amend the section that stipulates just what disposition must be made of the fund's premium income and provided that the board should have power to make any special assessments upon policyholders that might be necessary.

The first would have tied the fund to the terms of the old law, while ostensibly freeing it from its limitations. The additional premium provision would have driven away business because employers insuring in the fund could have had no assurance what their insurance rate would be.

The amendments as introduced by Senator Crow, do away with the special assessment features and release the state fund for current expense purposes, after Jan. 1, 1918, and stipulate that the fund become a self-supporting concern after July 1, 1919.

Attorney General Brown has stated that he has been assured that neither the Woodward bill, which has passed the House nor the Sproul bill, which has passed the Senate, both of which amend the present law relating to the Insurance fund, will be pressed further at this time. The Woodward bill, the members of the board say, would practically place the state's compensation insurance business on a mutual company basis.

Without hardly an opposing vote, the House on June 19, passed both the Ramsey and the Scarlet Mine Cave bills.

The Ramsey bill imposes a report upon the state and provides for the establishment of a separate bureau in the department of mines for this purpose. Several mine inspectors to look into the workings of mines with a view of preventing subsidence are provided for; they are vested with power to close a mine at the least sign of a possible cave in.

Far more drastic are the provisions of the Scarlet bill, which the Scranton committee on mine caves strongly favors and for which it has been making its big fight since the beginning of the session. The

**Scarlet bill places responsibility for adequate surface support directly upon the coal companies and makes the removal of coal and the cause of subsidence a criminal act punishable by a fine or imprisonment, and affects both the anthracite and bituminous regions.**

The Scarlet bill has passed two readings in the Senate, but was recommitted to the Mines and Mining committee on third reading, and has caused the Senate leaders considerable worry and uneasiness the last few weeks.

Immediately after the Scarlet bill passed the House the Delaware, Lackawanna & Western Railroad Co. representatives, acting for the combined coal mining corporations in the anthracite region, stated they would announce a voluntary offer to the people of the hard coal region, which is intended to make the several bills now in Senate committees unnecessary.

Public announcement of the attitude of the big anthracite corporations on the mine cave question and their offer in regard to repair of property damage caused by mine caves was made on June 22. The offer is voluntary on the part of coal companies and does not ask any agreements from property owners to cancel lawsuits or refrain from future suits or court actions.

The three main points in the offer of the companies are:

That the mining corporations will bear all the expense of repairing and restoring streets and highways that may be damaged by caving. This portion of the offer is said by mining men to include damage to sewers.

That in the case of dwellings valued at \$5000 or less, which may be damaged by caves the companies will pay all the cost of restoring the buildings.

That in case of structures valued at more than \$5000 the companies will provide artificial support at the expense of the owner of the building or sell the owner such pillar coal as remains and may be necessary for surface support, at a rate for pillar coal of the prevailing royalty rate at time of purchase plus 25 per cent. The average royalty rate is now about 30c. a ton and when 25 per cent. is added to that the cost to the surface owner will be approximately 38c. a ton. In some cases it would be less than the figure above named.

Each company signing the agreement obligates itself only for the repair of damage caused by its own mining.

The offer covers all properties held under deeds containing waiver clauses that exonerate the companies from damage caused by cave. Properties that are held under deeds that have not waived the right of support are entitled to protection without any offers from the companies.

The offer includes a statement that it is made to meet the situation that now exists and "to eliminate the desire for legislation, which, if it were enacted and could be enforced, would result in serious interference with mining operations and a large decrease in output, to the detriment of the anthracite communities and the coal consuming public."

The companies signing the offer are: Delaware, Lackawanna & Western Railroad Co., Pennsylvania Coal Co., Hillside Coal and Iron Co., Scranton Coal Co., Lehigh Valley Coal Co., Lehigh & Wilkes-Barre Coal Co., Lehigh Coal and Navigation Co., Philadelphia & Reading Coal and Iron Co., Temple Coal Co., Green Ridge Coal Co., Kingston Coal Co., Delaware & Hudson Co., and the Hudson Coal Co. (five years from date).

There is considerable opposition to the offer of the coal companies, and it is expected that big delegations will be at the capitol during the closing week of the Legislature and urge that the Scarlet bill be passed.

The offer is regarded by the legislative leaders as a solution of the problem that will not in any wise interfere with the production of anthracite coal, at a period when government control is threatened of all mines in the state. During the period of the war, if the coal fields are taken over by the national administration, all state laws affecting the production of the industry would necessarily be set aside, and in this way, the offer of the companies would have at least a two-year advantage over any legislation now contemplated.

The senate leaders at the time this program was adopted, had knowledge of the plan of the hard coal companies to take care of the damaged surface property. While they are impressed with the arguments of the members from the anthracite fields, they are loth to adopt any legislative policy which in later years would hamper the production and marketing of bituminous coal in this state, that must be placed at tidewater in competition with bituminous coal from other states, where the regulations are less severe.

## PENNSYLVANIA

### Anthracite

**Shamokin**—The Greenough Red Ash Coal Co.'s Marion Heights operation, part of which was made air tight several weeks ago to extinguish a fire, was visited by flames again on June 23 in the deeper portion of the workings. All employees were ordered from the colliery, except a fire-fighting force, that on a 40-deg. pitch extinguished the blaze.

About 200 employees of the Susquehanna Coal Co.'s Scott and Hickory Ridge collieries are rendered idle by fire, destroying a fan house at the former plant, which connects with the Hickory Ridge operations. The plants will be reopened in a short time.

**Jeanesville**—The Lehigh Valley Coal Co. is sinking a new mine at its local properties. It is planned to reach the 14-ft. bed through a slope 1200 ft. long. This will increase the present output and give employment to additional hands.

**Minersville**—Fire which originated in the carpenter shop underneath the breaker at 6:15 p.m. on Tuesday, June 19, completely destroyed the Buck Run Coal Co.'s recently remodeled breaker at the Buck Run colliery, and caused a loss of \$100,000. Seven hundred employees will be idle temporarily, while arrangements are being made to have the coal prepared at the Pine Knot colliery of the Philadelphia & Reading Coal and Iron Co. The Buck Run Coal Co. will rebuild as soon as possible and expects to have the new breaker in operation by the end of the present year.

**Jermyn**—Wearing large sombreros 150 Mexicans have been brought here to work in the mines and around the collieries by the Hudson Coal Co. The Delaware & Hudson R.R. has been handicapped by the shortage of laborers in working its mines and keeping the road in repair. For this reason it imported the Mexicans and will start them to work at once.

**Mahanoy City**—Another indication of the war measures that are needed for the mining industry was furnished by the Lehigh Valley Coal Co. at Mahanoy City when a number of women were engaged to copy mine maps. Depletion of the region of young men via the enlistment route was responsible for this departure from the usual rule of not employing women.

**Hazleton**—Anthracite companies and stripping contractors received notice on June 22 of another advance in the price of dynamite, making the fourth since the war began. More explosives are being used in the mines just now than at any time in the history of the industry owing to the demand for fuel.

**Wilkes-Barre**—In order that applicants for miners' certificates may not lose half a day, with consequent effect upon the coal output, miners' examiners in Districts Nos. 1 and 2 will hold only afternoon sessions at the Luzerne County court house on July 2, 3 and 5.

**Pittston**—In the preliminary contests on June 20, the No. 6, No. 14, Ewen and No. 5 colliery teams were selected to represent the South Pittston district at the annual First Aid contests of the Pennsylvania Coal Co. and the Hillside Coal and Iron Co. at Valley View Park in August. William Morris was the winner of the one-man event.

### Bituminous

**Altoona**—This city and Blair County in general has suffered considerably since the coal supply was shut off from being shipped in from the mines and the people have had to rely almost entirely upon motor truck transportation of coal from the mountain mines. The commissioners of Blair County have purchased a six-ton motor truck to be used in hauling coal from the mountain mines to the Court House, jail, almshouse and county hospital. When the truck is not engaged at this work it will be used to haul coal to the poor families of the county charging them the actual cost of the coal at the mines plus the cost of transportation service. This will keep the truck engaged constantly. It will deliver about 24 tons per day. If this truck proves satisfactory and is a saving to the people the commissioners will consider the purchase of others.

**Bakerton**—The new mine of Clark & Wastover Co. here has been sold to a syndicate of Johnstown men. The mine is fully developed and has a capacity of several hundred tons per week. The improvements to the property and 12 acres of "D" vein coal are included in the deal.

**Connellsville**—F. A. Burkey has purchased from Mrs. Mae Johnston of Connellsville 217 acres of Sewickley vein coal near Edenborn on the Monongahela R.R. The consideration was not made public.

Mr. Burkey states that he will begin at once to develop the new property.

The Connellsville Coal Co. has sold its plant and holdings near Connellsville to Fred Opperman, the consideration not being made public.

Several Connellsville men have formed the Greymont Coal Co. and purchased 120 acres of coal near Philippi, W. Va. Shipments will be begun this week from the new property. They also own another tract adjoining of 200 acres.

**Johnstown**—One day last week there were 35 different operators loading by wagon at the Seventh ward siding of the Baltimore & Ohio R.R. here. The B. & O. has been very good with car supply to wagon loaders, only being short at times.

W. A. Marshall & Co., controlling several mines in Pennsylvania, have acquired a large tract in West Virginia near Harrison. The tract comprises about 1600 acres of coal and work on development will be started at once and a town erected at the new operations. Arrangements are being made for a daily output of 1500 tons.

**Brownsville**—Fire thought to have been of incendiary origin destroyed the large barns of the Halstead & Semans Coal Co. near here on June 23, entailing a loss of \$15,000. Besides the barns the feed, hay, harness and other implements were lost. Twelve horses had been removed from the barn about half an hour before the fire started, to go into pasture thus saving their lives.

**Savan**—A trip of cars ran away on the inclined plane of the Saven Colliery Co. mine here recently when they became uncoupled. The dump, chutes, tipple and tipples machinery were wrecked throwing the mine idle for several days until repairs could be made. One man was hurt when a lump of coal from one of the cars struck him on the arm breaking it.

**McIntyre**—The Coal Run Mining Co. is rushing the work in the four new mines here. Coal Run Nos. 4, 5, 6 and 7 are being opened. Steam shovels are at work on the grading of the sidings while the tipples, substation and other buildings are being completed. The four new mines are all opened in the "E" seam.

**Kent**—The new Kent mines of the Jefferson & Clearfield Coal and Iron Co. are being opened here. The drifts are already in and sidings connecting with the B. R. & P. Ry. will be completed shortly.

**Denbo**—The Fifth Pool Coal and Coke Co. recently purchased a 60-acre tract of coal near here and has begun operations on the property.

## WEST VIRGINIA

**Rivesville**—A new mine is being opened near Rivesville by the Chesapeake Coal Co., and as soon as the railroad siding is completed, mining operations will be started. This mine will be electrically equipped throughout. Application has been made to the Baltimore & Ohio R.R. for a siding to the mine and this siding will probably be constructed within a short time.

**Charleston**—Twenty-eight fatalities occurred in the mines of West Virginia during the month of May. Of these 13 were caused by falls of roof and coal. Four men were killed by mine cars within the mines and five by cars outside; two were electrocuted and one each met his death by mining machine explosion, on the incline and a mine locomotive. Nine fatalities occurred in Raleigh County, five in Fayette, four in McDowell, two in Kanawha and one each in Boone, Logan, Marion, Mingo, Ohio, Preston, Putnam and Wyoming.

The M. A. Hanna Coal Co., of Cleveland, Ohio, which has extensive operations on Paint Creek, has purchased the mines of the Standard Splint Coal Co. The firm employs between 300 and 400 men in the two mines belonging to the Splint company.

## ALABAMA

**Birmingham**—The Woodward Iron Co. has completed the sinking of its new shaft mine, near Dolomite. The mine structures and equipment for this new opening will be modern in every respect and the plant will be operated by electricity.

## KENTUCKY

**Henderson**—The largest local transaction of many years in coal lands has just been closed here. The Keystone Mining Co. has just deeded its mining property and more than 2000 acres of coal and mineral rights to the Mid-West Fuel Co., composed of Pennsylvania investors. The price involved is said to have been \$100,000. This will mean immediate resumption of operations at the mines, together with new developments, the purchasing company proposing to prepare for an output of from

3000 to 4000 tons daily. The coal will be loaded on barges and shipped to Southern markets. In addition to the Keystone property the company has options on 5000 acres. It is proposed also to establish coke ovens and make coke for river shipments. The Keystone property has been in litigation and idle for the past three years. Officers of the Mid-West company are: Enoch Bellis, of Edensburg, Penn., president; Joseph Griffith, Nanty glo, Penn., vice president and general manager; Andrew P. Creekston, Johnstown, Penn., secretary and treasurer.

**Frankfort**—The first commercial coal brought down the Kentucky river from Beattyville, Ky., has been received by the Frankfort Elevator Coal Co., which has leased a mine at Beattyville and is preparing to operate on an extensive scale. This is the second use of the river for transporting this coal. The Federal Government has been obtaining its supply for its local use at Beattyville and bringing it down the river for several months.

**Barbourville**—The case of the Continental Coal Corporation, in bankruptcy, was called before Judge W. W. Tinsley at Pineville on June 26. The schedule of liabilities is said to range between \$2,000,000 and \$3,000,000, including about \$2,000,000 of bonds. The assets include a number of mining plants in the Pineville district valued at \$2,000,000 or more.

**Whitesburg**—Coal operators throughout the Elkhorn fields report quite an improvement in labor conditions within the past few days. It is said, also, that a freer movement of coal cars is in effect. All mines are running full time. Many new coal operations are being added throughout the whole of the coal fields. Some new sections are being opened which will largely increase the coal tonnage for the present year.

**Jenkins**—Improvements are being made in the store buildings at Dunham, Burdine, Jenkins and McRoberts. New additions are being built in some instances in order to meet with increased business due to the activity of the mines.

**Hazard**—The Blue Grass Coal Co. is increasing its output and is now loading 12 cars daily instead of six as heretofore. Many of the operating companies in the Hazard field are making increases and improvements in their plants.

**McRoberts**—The McRoberts Y. M. C. A. was burned recently with a heavy loss. It is said that lightning set the building on fire. Another and a more pretentious structure, modern in every respect, will be built.

#### OHIO

**Athens**—Chairman O. H. Hughes, of the Ohio Public Utilities Commission, has been visiting this section in order to obtain first-hand information on the state of transportation with reference to the coal mines. The Commission has been strictly enforcing its recent order that preference be given to coal shipments, as many public service corporations have complained of dangerously inadequate fuel reserves.

The Hocking-Sunday Creek Traction Co. is earning money from hauling coal in the Hocking coal fields as well as passengers. So great is the demand for coal that 10 mines of considerable tonnage have been opened along the traction line, which is hauling the product to the near-by railroads.

**Columbus**—Grave apprehension has been expressed by local coal operators over the labor situation, unless there is a disposition to excuse from military service, at least temporarily, coal miners, who have shown efficiency. They say that Ohio mines are being operated with from 50 to 60 per cent. of the number of workers actually needed if the mines are to be developed to their fullest capacity, in order to take care of the greatly increased demand for coal from the army and navy and from industrial plants, which are working on war orders.

**Rendville**—Four deputies working under the direction of State Mine Inspector L. D. Devore have succeeded in sealing up mine No. 268 of the Ohio Collieries Co., at Rendville, Perry County, which caught fire June 2. By this means it is hoped to extinguish the fire. A shaft will be sunk into the mine in 60 days so that a part of it may be operated.

#### ILLINOIS

**Hillsboro**—Objections have been filed with the Board of Review of Montgomery County to the taxes that have been assessed against coal lands owned or controlled by the Big Four Railroad Co., the Big Four Coal Co., H. S. Hargrave, Ruby Hargrave, C. & E. I. Railroad Co., and the Guaranty Trust Co. of New York. The objection is based on the fact that

the Board in 1916 raised the assessment to \$8 an acre.

**Herrin**—The Herrin Co-Operative Society, in the past three months, paid a dividend on the basis of purchase to members of 8 per cent. The total sales to members were \$3942.91. Sales to non-members were \$2597.51. The total resources are \$4289.93.

**Springfield**—Nearly \$240,000 was paid in wages to miners in Springfield on the last semi-monthly payday. This breaks all records and is \$150,000 more than is paid out in ordinary times. One company alone paid out \$115,000 to its employees. There are 15 coal companies in Springfield and 35 in the county. The figures would be even higher, according to O. Glenn Scott of the Scott Coal Co., if the mines could get enough cars. However, the mines are working more steadily than they ever have before. Besides the \$240,000, \$20,000 was drawn from Springfield banks for payment of miners' wages outside the city.

**Carbondale**—The new interurban line between Carbondale and Murphysboro is almost completed and the officials of the company hope to run the first car between the two towns on the Fourth of July. The bridge over the Big Muddy River has been completed. The road will pass through the heart of the coal field and will afford needed accommodations for operators and miners. There is great interest in a projected trolley system from Springfield to Cairo. The great coal field is gradually being connected by electric lines. It is expected that these lines will ultimately find a natural terminus at St. Louis over the municipal free bridge.

#### Personal

**W. Owen**, former city engineer of Nainimo, B. C., has been appointed construction engineer with the Canadian Collieries at Cumberland, B. C.

**Charles F. Huber**, president of the Lehigh and Wilkes-Barre Coal Co., has been appointed to the Wilkes-Barre City Planning Commission, to fill a vacancy caused by the death of John C. Bridgeman.

**Joseph Dunn** resigned as mine foreman of Fulton Run shaft of the Jefferson & Clearfield Coal and Iron Co. at Ernest, Penn., to become superintendent of the Coy mine of the Brush Creek Coal Mining Co. at Homer City, Penn.

**Karl W. Bock**, for several years secretary and assistant to the vice president of the Union Pacific Coal Co. and subsidiary firms at Omaha, Neb., has been appointed manager of the Walter A. Zelnicker Supply Co. of St. Louis, Mo.

**W. D. McCausland** has resigned his position as assistant general manager of the West Virginia Pittsburgh Coal Co. and has taken charge of the Pittsburgh sales offices of the Pittsburgh & Ohio Mining Co., located at 918 House Building, Pittsburgh.

**J. W. Gates**, of Williamson, W. Va., has resigned as state mine inspector, to accept a position as company mine inspector with the New River & Pocahontas Consolidated Coal Co. He will take up his new duties about July 1, with headquarters at Berwind, W. Va.

**Ernst Prochaska**, formerly with the American Zinc, Lead and Smelting Co., has accepted a position as engineer in charge of new coal-washer construction for the United States Fuel Co., of Westerville, Ill. This firm intends to build a large washery near Benton, Ill.

**Thomas R. Jones**, formerly division superintendent of the Mahanoy Division of the Lehigh Valley Coal Co. has been named as general manager of the Madeira Hill Coal Co. and allied interests. He went with that concern several months ago and has been advanced to fill a vacancy by the promotion of Manager Thomas to the post of consulting engineer.

**A. A. Augustus**, of Cleveland, Ohio, president of the Cambridge Collieries Co., and a member of the governor's war cabinet, has been delegated to act as chairman of a meeting of Ohio coal operators and railroad officials called by Governor Cox, to meet at Columbus on Friday, June 29. The purpose of the meeting is to work out some improvement in the present coal situation.

**David J. Boyle** has resigned his position as general inside superintendent at Deringer Colliery operated by Cox Bros. & Co., to take charge as general superintendent and manager for the Laurel Coal Mining Co. of the operations being opened at Moury, Penn. The latter company intends to build a large breaker and drive about 800 ft. of tunnel to cut the Lykens, Buck Mountain, Seven Foot, Skidmore, Mammoth and Holmes coal beds. It intends to ship coal in November or December of the present year.

#### Industrial News

**Washington, D. C.**—A general detailed survey of the geology and structure of the New Kensington Pennsylvania quadrangle is being made by G. B. Richardson, of the Geological Survey. This area contains important coal deposits and is near the eastern edge of the Appalachian oil field. For this reason there is much economic interest in the study.

**St. Louis, Mo.**—The proposed advance in freight rates of from 15 to 40 per cent. of the present prevailing rate on coal and other commodities, as proposed by the railroads in the State of Illinois, has been suspended for 100 days at the hearing in Springfield, Ill., recently. The railroads in Missouri now propose to increase their freight rates on coal and everything else. A hearing will likely cause a suspension.

**Louisville, Ky.**—After testimony had been taken from several witnesses, R. T. Boyd, coal dealer, amended his suit against the Petersburg Coal Mining Co. and J. W. Lam, president and principal owner, for damages for breach of contract, and the trial was re-assigned to Nov. 9 in the Jefferson Circuit Court here. The plaintiff asks for \$45,436.11 alleged losses on profits he would have made on re-handling coal. The period involved was from Apr. 1, 1916, to Apr. 1, 1917. The plaintiff alleged he contracted for the sale, altogether, of 33,000 tons of coal, on which his profits would have amounted to the sum sued for. Failure of the defendants to make deliveries as contracted caused him the losses, he avers.

**Seattle, Wash.**—Bids will be opened by the State Bank Examiner on July 25 for the purchase of the Issaquah-Superior Coal Mining Co. property, part of the assets of the Northern Bank & Trust Co. defunct. The properties consist of 1200 acres pledged as collateral security for loans by the bank to Alvo von Alvensleben, financial agent of Kaiser Wilhelm, which were closed down when war was declared, the Brady & Gay property, bought by the examiners with the approval of the court for \$24,000 and the Eastman property, also purchased by the examiners for \$20,000. The original mortgage was drawn for \$98,000 but additional claims and purchase of property to clear titles have brought the indebtedness up to \$200,000. An offer of \$235,000 has already been made to the bank examiners for the property.

**Hazleton, Penn.**—A coal land deal of considerable importance was closed at Hazleton, recently when William M. Powell, representing the Powell heirs, sold to James Johnson of Uniontown, the old Crow Farm situated between New Geneva and Masontown, Fayette County, Penn. A branch of the Pennsylvania R.R. runs through the property which is also adjacent to the Monongahela River. The tract consists of 176 acres and contains the Pittsburgh and Upper and Lower Freeport veins. The sale price was \$100,000 cash. This is a virgin property and was purchased by the late William Powell 40 years ago from Judge Crow of Fayette County, when coal land values were not as great as at present. It was but recently placed on the market although numerous purchasers had been bidding for it during the past dozen years. The new owner already operates mines in Greene and Fayette Counties. He has opened negotiations for extending a siding of the railroad and intends putting up a \$75,000 plant.

**Seward, Alaska**—That development of the Matanuska coal field is now only a matter of a short time is the opinion of Andrew Christensen, manager of the Land and Industrial Department of the Alaska Engineering Commission. The Commission is now building a branch road to the Eska coal mine, a distance of 3 miles, where William Martin and his associates are preparing to take out 200 tons of coal a day and for this coal the commission will pay \$4.50 a ton instead of \$12 and \$16 as it formerly paid for outside coal. Five miles above the Martin mine another one is being opened. The operators of the Eska mine have opened four beds and will open two more. The outlook for a market looks more encouraging than ever Christensen believes. One company in California he states, is going to start a steel mill and is negotiating for 15,000 or 20,000 tons a month from the Matanuska field. But the greatest promise of all comes from the fact that another big company, which is taking options on iron ore along the Pacific and Alaska coast for the manufacture of steel wants from 3000 to 6000 tons of coal a day from the same source of supply.

# Market Department

## GENERAL REVIEW

**Heavy anthracite shipments fail to relieve the shortage.** Drastic Government regulations upset the bituminous trade. Heavy demand in the Lake trade keeping prices up. Better movement in the Middle West and demand continues urgent.

**Anthracite**—Considering the remarkably heavy shipments reported the anthracite trade shows a very meagre improvement. Sections contiguous to the mining regions are being obviously discriminated against in the matter of shipments in favor of the more remote points where the situation is becoming somewhat clearer, except in isolated cases such as New England. Arrivals in that section are hopelessly behind those of a year ago and there are no apparent indications of any relief in sight. On the other hand, shipments to Middle Western points and up the Lakes are steadily increasing. The big shippers have been slow in announcing their new circulars and this has naturally delayed similar announcements from the independent operators since the Federal Trade Commission has decreed maximum prices for individual coals proportionate to the circulars of the big companies.

**Bituminous**—The drastic action of the Government in matters concerning the coal industry is creating a general feeling that the critical point in the future of the trade is at hand, with the result that there is a widespread tendency to mark time pending further developments. The market is not weak, but on the other hand both the volume of business and prices on spot sales have fallen off, and there has been a quietness in the trade that is strongly reminiscent of the customary dull and heavy market usual at this time of the year. It is also developing that a number of heavy consumers who have been in the market so strenuously recently have succeeded in accumulating some reserve, on which they are now drawing until the future of the market becomes better defined. The proposed pooling arrangement is coming in for considerable attention, and there are now definite plans for getting this under way immediately.

**Lake Trade**—The pooling arrangement has helped transportation conditions, making a freer movement, but a very heavy tonnage is being absorbed in the Lake trade, and the market is firm with prices up slightly. Lake boats are plentiful, dispatch is quick, and the movement to the Northwest is increasing rapidly, though shipments from the Pittsburgh district are still unsatisfactory. While there is a natural tendency to proceed cautiously, as a result of the expected limitation of prices, conditions so far have shown no tendency to ease up. Canadian dealers still have a mass of accumulated orders on hand, but have lately been able to fill some of this business. Requests for bids on Government and state business seldom bring out any satisfactory prices, and quite frequently none at all. The possibility of some action by the State of Ohio in the matter of high prices is further complicating matters.

**Middle West**—There has been a notable improvement in the car supply and movement with the result that the market is a trifle easier. The exceedingly warm weather has also had a certain psychological influence, but in spite of these conditions, operating interests still have a large volume of accumulated orders which will take them sometime to catch up on. In addition to this considerable new business continues to come in from new sections not ordinarily supplied by mines in this district, while the shortage is further aggravated by the withdrawal of practically all the Eastern coal from this market. It is estimated that the deficiency from this cause, together with the extra consumption, due to the great industrial activity, will throw an extra demand of not less than 25,000,000 on the Middle Western mines.

**A Year Ago.**—Anthracite circular holding very steady for the midsummer period. Complete adjustment of Pittsburgh labor controversy causes mild reaction in bituminous. Exports on the increase. Lake movement heavy and Middle West less active though still good.

The following table gives the range of mine prices in car lots per gross ton (except where otherwise noted) on 12 representative bituminous coals over the past several weeks and the average price of the whole group for each week:

	Year Ago	June 30	June 23	Gross Averages <sup>3</sup>
Boston				
Clearfields	\$1.10@1.60	\$5.25@6.00	\$5.25@6.00	1917
Cambria and Somersets	* 1.35@1.70	5.50@6.25	5.50@6.25	1.71@1.90
Pocah. and New River <sup>1</sup>	* 2.80@2.90	6.25@6.50	7.25@7.50	1.64@1.84
Philadelphia				
Georges Creek (Big Vein)	1.90@2.00	6.00@6.25	5.75@6.00	1.64@1.90
W. Va. Freeport	1.15@1.25	5.25@5.50	5.00@5.25	1.46@1.65
Fairmont Gas mine-run	1.40@1.50	5.50@5.75	5.25@5.50	1.53@1.68
Pittsburgh (steam coal) <sup>2</sup>				
Mine-run	* 1.50@1.75	4.75@5.00	4.75@5.00	1.44@1.60
2-in.	* 1.60@1.75	4.75@5.00	4.75@5.00	1.45@1.61
Slack	* 1.20@1.30	4.95@5.05	4.95@5.05	1.46@1.62
Chicago (Williamson and Franklin Co.) <sup>3</sup>				
Lump	1.45@1.55	3.50@3.75	3.50@3.75	1.44@1.55
Mine-run	1.20@1.30	3.00@3.50	3.00@3.25	1.41@1.55
Screenings	* .90@1.00	2.75@3.25	2.75@3.25	1.47@1.63
Gross average <sup>3</sup>	\$1.46@1.64	\$4.79@5.15	\$4.81@5.15	1.50@1.66

<sup>1</sup> F. o. b. Norfolk and Newport News. <sup>2</sup> Per net ton. <sup>3</sup> The highest average price made last year was \$4.80@5.33 made on Nov. 25. \* Price lower than the week before.

## BUSINESS OPINIONS

**Iron Age**—The agitation of Government control of prices for iron and steel products and for coal and coke has added a new serious element of uncertainty to the situation, and the perplexities of buyers have increased as prices have made further advances. The possibility of disturbance to business by ill-considered price fixing is a repressing influence, and steel manufacturers who for some time have refrained from selling because they were reserving their product for Government use now have added reason for taking no new steps.

**Dun**—All other business features are overshadowed by the price situation, which daily becomes more extraordinary. Notwithstanding the rapid and practically unchecked rise for many months, noteworthy advances in raw materials and partially manufactured and finished products continue, and that even more striking levels may conceivably be reached is everywhere considered. That such facts appear is not surprising, however, for government and other demands upon the country's leading industries are increasingly importunate and the growing shortage of supplies, with the steadily enhanced costs of production, have naturally accentuated the strength of commodities. Commercial failures this week are 285, against 277 last week, 261 the preceding week and 281 the corresponding week last year.

**Bradstreet**—Bustling activity characterizes the leading industries, particularly iron, steel, lumber, textiles, coal and shipbuilding, and at the same time governmental buying in numerous lines is still spreading. Crop news is better, higher temperatures have made for improvement in retail trade, railway cars are in relatively larger supply, prices for some food products tend downward, and payments in the larger branches of enterprise are good. Withal, wholesale trade is relatively slow, reorders going to jobbers are exceptionally light, conservatism respecting buying for future delivery is in evidence, luxuries and fancy articles are practically neglected—a sign that economizing is still widely prevalent.

**Dry Goods Economist**—Raw cotton again played the star part in the dry goods field this week. The price advanced to a point never before reached since 1871, resulting in the temporary closing of the Liverpool Exchange. This was followed by a heavy break, bringing spot cotton on the New York Exchange to 25.80 cents. While the advance was in progress there was considerable betting among New York cotton goods operators that raw cotton would go to 29 cents before the middle of July.

**Marshall Field & Co.**—Current wholesale distribution of dry goods shows splendid gains over the corresponding period of 1916. Road sales for immediate shipment exceed the volume of last year and are considerably ahead of last year's business for future delivery. Merchants have been in to market in about equal numbers. Collections are larger. Prices are firm.

## Comparative Average Coal Prices

## Current Events

**Transportation Notes**—The car shortage in May was reduced to 105,127 cars as compared with 148,627 in April. The rapid improvement is ascribed to the actions of the Railroad War Board.

**Fuel Shortage Items**—A dramatic appeal was made by Secretaries Lane and Daniels before a joint meeting of 400 coal operators from all parts of the country who assembled at Washington on June 26, urging them to use their utmost efforts to stimulate production and at the same time impressing upon them the necessity of establishing a reasonable price for coal. Secretary Lane called attention to the fact that there were seven bills now before Congress which were designed to take over the operation of the coal mines and urged upon the operators the necessity of their taking prompt and voluntary action in the matter. The chief objection to the plans lay in the possibility of Government intervention for violation of the Sherman Anti-Trust Law, should the operators take action to establish uniform prices.

On June 25 the Pennsylvania R.R. called a conference of 75 coal producers and shippers on its lines in an endeavor to arrange contracts for some 6,000,000 tons of coal it will require during the ensuing 12 months. It has contracts already covering 7,000,000 tons of its requirements which are expected to amount to 13,000,000 tons, an increase of 2,000,000 tons over last year. The road expects to pay \$2.85 per ton for this additional six million tons it requires, which compares with \$1.23 a ton in 1916.

A Washington dispatch under date of June 26 stated that the Government would soon issue a proclamation prohibiting the exporting of coal except when licenses to do so had been issued. This is being done for the purpose of controlling shipments to neutral countries. Dr. Edward Ewing Pratt, Chief of the Bureau of Foreign and Domestic Commerce, stated on June 22: "The aim of the Government in putting the export clauses into effect will be to restrict as little as possible the normal course of commerce. We want, by way of illustration, to give Norway all we can, as well as other neutrals. In other words, what the Government has in mind is a fair deal all around."

Governor Cox of the State of Ohio has been requested by the Attorney General to institute a very exhaustive examination into the reason for the existing high prices of coal with a view to establishing some scheme of maximum prices.

Senator Pomerene of Ohio stated on June 21 that: "Complaints have reached me that coal operators have fixed arbitrary prices and that they refuse to sell except on their own terms, on which there seems to be some general understanding. If these prices are not regulated coal will go up to a price next winter that will be pro-

hibitive to the householder and it will make the cost of manufacturing so great that prices will advance anywhere from 250 to 500 per cent more."

**Legal.**—The trial of the 51 West Virginia coal operators for violation of the Sherman Anti-Trust Act, has been bringing out many points of interest. Borden Covel, President of the Northern Coal Co., with headquarters in Boston, testified last week that in buying coal from several of the defendant companies for the fiscal period 1916-17 he had encountered a practically uniform price of \$1.35 per gross ton at the mine, though he also stated that this same price was being quoted by other West Virginia operators who are not members of the indicted association. Mr. Covel stated further that he had sold considerable coal to the British Admiralty at \$5 a ton and some as high as \$8.40 per ton. The objection to the introduction of information contained in letters illegally seized by the Government, was in part sustained by the Court. A letter of the Berwind-White Coal Mining Co., dated last December, stating that they could not fill 50 per cent of their contracts negotiated on a basis of \$3.50 per ton, was regarded as significant evidence for the defense, in view of the fact that this company was not connected with the association, whose contract figure was only \$3. On June 24 a great deal of damaging testimony was introduced in the shape of various letters written by a number of defendants and the reading of the minutes of the meetings of the association. W. R. J. Zimmerman, the secretary of the association, was the chief witness on June 26, at which time copies of price lists were introduced in which the mine-run figure at tidewater for 1917 was fixed at \$4.75 as compared with \$3 in 1916. On June 27 the Government introduced testimony tending to indicate that the 500,000-ton contract of the Panama Railroad Co. had been quietly distributed among interested operators at practically their own figure. A great deal of testimony was also introduced concerning the Navy contract tending to show a concerted action in the matter of fixing prices on that business.

**Legislative.**—On Tuesday of this week the Senate Committee on Interstate Commerce started an inquiry on a bill recently introduced by Senator Pomerene of Ohio, authorizing the President in time of emergency to fix prices for coal and if necessary to requisition mining plants. Coal operators from Pennsylvania, Ohio and West Virginia were subpoenaed and the committee expects to conduct a very rigid examination.

**Labor.**—The demand of the West Virginia coal miners in the Kanawha field for an increase of 10c. per ton on the mining scale and 60c. per day on the day wage scale was granted by the operators near the close of last week.

**Federal Trade Commission.**—On Wednesday, June 20, the Federal Trade Commission submitted an exhaustive report to Congress on the coal situation, in which it recommended Government control, if not direct ownership, of both mines and transportation facilities. Secretary Daniels at the same time announced that the Government was not contemplating taking over the coal mines, but that the Federal Trade Commission would be asked to make a very close analysis of the cost of producing coal, as well as other materials the Government is going to buy.

**Ocean Shipping.**—The German liner "Kronprinzessin Cecilie" was taken over by the Shipping Board on June 21. It is estimated that it will cost \$110,000 to repair the damage done to her and put her in seaworthy condition. This is the second largest of the German ships interned at New York registering 19,500 tons.

The under secretary of the French Mercantile Marine stated on June 23 that the French merchant fleet at the beginning of the war aggregated 2,500,000 tons and since that time has lost 560,000 tons, but during the same period 680,000 tons has been built or bought and another 140,000 tons was under construction.

In a semi-official statement issued in Washington on June 23 it was estimated that there was something over 1,000,000 tons of shipping now under construction in this country for foreign countries which the Emergency Fleet Corporation of which General Goethals is the head, may be authorized to commandeer. It was stated that by so doing the Government would be able to complete perhaps 300,000 tons more than would otherwise be done this year.

**Foreign Markets.**—Mr. Marconi, the inventor, at a luncheon given by the New York Merchants Association to members of the Italian War Commission on June 22 stated: "In normal times we import about

900,000 tons of coal a month and we are now getting about half that amount. We must have coal to keep our munition factories going, run our railroads and our factories, the stoppage of which would mean the throwing of a million men out of work. If we do not get this coal, and get it quick, our ammunition factories will have to work half time or stop, our trains will cease to run, diminishing the efficiency of the army, and even perhaps bringing about local famines."

**Foreign Trade.**—Gross exports from the United States for May amounted to 551 million dollars, exceeding April by 21 million dollars. Exports for the 12 months ending May amounted to 6183 million dollars.

## Atlantic Seaboard

### BOSTON

A dull market with only scattering spot sales. Buyers postpone purchases. Current prices easier, and larger receipts looked for during July. Pennsylvania grades fairly firm, but movement improves. Anthracite unchanged.

**Bituminous.**—A quiet market prevails in this territory. It is especially so on Pocahontas and New River. Both the number and the prices of spot sales have diminished during the week, and one is almost reminded of the midsummer dullness that used to be so characteristic of this market in July. Seven dollars is no longer quoted, except in extreme cases, \$6.25@6.50 being nearer the close sale level at Hampton Roads. Loading dispatch is already better, as if in sympathetic response to the plans for "pooling" that are soon to go into effect. Beyond question, car service has improved and practically all the larger agencies no longer have reason to enter the spot market for small lots to clear ships.

It never takes long for the New England market to change its tune. The symptoms appeared some weeks ago when coastwise tonnage was quietly offered at a material "cut." There were such strenuous efforts to accumulate from one direction or another that several of the larger corporations, railroads included, have got together two and three months' stock and will now buy very lightly until the July market can be gaged. Smaller buyers are also waiting. The warm weather, with conditions more favorable for coastwise movement, has a sentimental effect on the situation, and the possibility of Governmental action is also having its influence. The market is not weak; it is just marking time. Possible purchasers are not bidding against each other to get coal. Cargoes that come forward on the market are absorbed without much difficulty, but certainly there is only restricted buying at this writing.

Receipts are increasing gradually, but as yet prices for inland delivery are not much modified. The amount of coal spared from contract obligations is only small in any case, and rather than depress prices, re-handlers are likely to confine deliveries to season orders. The all-rail gateways are again open, and the demand is strikingly less than a week ago. There is a more comfortable tone to the situation, yet at the same time inquiry for prompt coal disclosures no particular recession in price.

The S. S. "Tidewater," one of the large colliers in the coastwise trade, is reported sold for \$2,600,000 to the American-Italian Steamship Co. This ship was built by interests identified with the rehandling trade at Boston and at Providence and goes to show that by some the outlook for the business is not so serious but what a large carrier can be dispensed with.

Georges Creek is heard from only spasmodically. Barges that in normal times are largely confined to this grade are still loading occasionally at Hampton Roads. All-rail movement of this grade continues light.

Steam coals from the Pennsylvania districts maintain the prices of a week ago. Shipments are more even, and now that several of the embargoes have been lifted, New England service is better. Car-supply is still very short, and labor is not plentiful. There is less buying, for the moment, as if consumers were availing themselves of a breathing spell.

After a temporary firmness at the Tide-water loading ports prices have again receded to practically the f.o.b. mine basis, plus tolls. It will be interesting to observe the effect of "pooling" on the Pennsylvania grades at Philadelphia and New York. If prices are cut down the plan will be acclaimed by the buying element as a distinct success.

Bituminous at wholesale, f.o.b. loading ports at points designated, are quoted about as follows, per gross ton:

	Camb. an Clearfields	Somersets
Philadelphia.....	\$6.50@7.25	\$6.75@7.50
New York.....	6.85@7.50	7.00@7.85
F. o. b. mines.....	5.25@6.00	5.50@6.25
Alongside Boston (water coal).....	8.75@9.50	9.00@10.00

Pocahontas and New River are now quoted at \$6.25@6.50 f.o.b. Norfolk or Newport News, Va., for spot coal, and \$10.50@11 on cars, Providence, Boston or Portland for inland delivery.

**Anthracite.**—Receipts in this territory are no better, either by water or rail. Efforts of the Federal Trade Commission seem to be unproductive so far as New England is concerned. Retailers are working over reports to the Federal authorities, but coal is not forthcoming. The "dependents" are no more active than a week ago; 20c. commissions are not drawing forth many cargoes, and the mystery deepens: whence has gone the big volume of coal mined in May?

Tonnages are way behind a year ago, and there seems no prospect whatever of catching up.

### NEW YORK

No relief for anthracite shortage in sight. Individual coal apparently going in other directions. Steam coals easy. Bituminous trade interested in pooling arrangements. Free coals scarce and prices hold firm.

**Anthracite.**—With a steady demand and no appreciable increase in receipts of domestic coals this market is in a serious condition. Although the mines are being operated to their utmost capacity, the receipts here are far short of the demand. Arrivals of individual coal are far below normal.

Stocks of domestic coals are so low that it is difficult to find a middleman who has any to offer for sale. Some shippers compare the present situation with that existing during the strike of 1902. The wholesale offices are the gathering places of dealers who arrive early and remain until closing time. Retail dealers are fearful of the situation facing them in the early fall.

There is not much relief in sight until the inland markets have been taken care of. The heavy call for supplies from northern New York, Canada and New England continues, and shippers with regular customers are sending all the coal possible to these points.

On July 5 dealers will be asked for bids on 98,965 gross tons of hard coal for the public schools, to be delivered during the year beginning July 12.

Of the domestic coals, chestnut is in strongest demand but like egg and stove is not to be had. Pea coal has also stiffened considerably.

The steam-coal situation is unsettled. Demand has fallen off and stocks are accumulating. Consumers are again urging shippers to sign up contracts but with little success, as operators are holding off. Buckwheat No. 1, while not as easy as either rice or barley, is plentiful. Rice and barley would be a drug were it not that they are being placed in storage. Individual boiler is easy.

Current quotations, per gross ton, f.o.b. Tidewater, at the lower ports, are as follows:

	Circular	Individual
Broken.....	\$5.40@5.55	.....
Egg.....	5.40@5.55	.....
Stove.....	5.65@5.80	.....
Chestnut.....	5.70@5.85	.....
Pea.....	4.10@4.55	\$5.50@6.00
Buck.....	4.00@4.15	4.50@4.75
Rice.....	3.40@4.05	3.75@4.00
Barley.....	2.90@3.10	2.75@2.90
Boiler.....	3.00@3.25	.....

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates.

**Bituminous.**—The inauguration of the arrangement for the pooling of coal and the scarcity of free coals are the features of the situation here. The possibility of having cargoes of pooled coal rejected by consumers who heretofore have been receiving one grade of fuel, does not appeal to shippers. While the proposed pooling does not meet with the entire approval of the trade, the success of the plan depends largely upon those who will be selected to manage it.

Demand is strong and prices are varied, much depending upon the urgency of the buyer and the grade of coal available. Even contract holders are not obtaining their full requirements, although they are better off than they were a few weeks ago.

The local trade was well represented at Washington on Tuesday of this week, when the Federal Trade Commission held a conference. The question most frequently

asked now is whether the commission anticipates fixing a mine price for bituminous coal. The fear that it will may be responsible for the delay in buying, which has been a factor in the local situation for some time.

The Department of Education of this city will open bids on July 5 for 13,560 gross tons of semi-bituminous coals.

Current quotations, per gross ton, f.o.b. Tidewater, for various grades, are as follows:

	Port	Mine	Price
	Reading	South Amboy	
George Crk.			
Big Vein..	\$7.25@7.50	\$7.25@7.50	\$5.75@6.00
Tyson..	7.00@7.25	7.00@7.25	5.50@5.75
Clearfield..	6.75@7.00	6.75@7.00	5.25@5.75
South Frk..		7.00@7.60	5.50@5.75
Nanty Glo..		7.00@7.50	5.50@5.75
Som'r. Co..	6.75@7.00	6.75@7.00	5.25@5.50
Que'ho'ing..	7.00@7.25	7.00@7.25	5.50@5.75
W. V. Fa'rm't			
Th'r'qua..	7.00@7.25	7.00@7.25	5.50@6.00
Mine-run....	7.00@7.25	7.00@7.25	5.25@5.50
West. Md..	6.75@7.00	6.75@7.00	5.25@5.50

#### PHILADELPHIA

**Anthracite shipments fail to improve.** New prices keep trade on edge. Individuals working close to trade commission maximum. Retailers still blocked with orders. Heavier shipments promised for July and August. Prices advance slightly. Pooling plans awaited with interest.

**Anthracite**—The warm weather has not increased shipments in this direction or reduced the demands of the dealers. There continues to be a falling off in the new orders received by the retailers, but even at that this business is heavy when compared with ordinary seasons. The demand of the public for coal is no less than that for every other commodity, as many feel that with the continuance of the war much higher prices will prevail.

Following the custom of the past several months the big shippers have been slow in issuing their new circular, even though it was not expected that there would be more than the customary 10c. increase. The individual shippers were even slower, as they wish to be certain that they were not more than the 75c. in excess of the company circular as fixed by the Federal Trade Commission as a maximum price. Before announcing their prices the individual shippers did considerable feeling around to ascertain as nearly as possible whether circumstances would warrant a further increase. For several months the large producers have been promising the much-needed coal during July and August and many of the retailers have held their organizations together during June, practically without supplies, waiting for the opportunity of filling the orders taken at the lowest prices during early April. The dealers almost without exception have avoided delivering the low-priced business while they had an opportunity to apply the coal on orders at the higher rates effective since May 1.

The market is in condition to care for an immense tonnage and if the companies decide to ship here they can easily break all records for the two months. There are dealers who will be satisfied if they can fill their present obligations by Sept. 1 and those who have less business are hoping to be able to store coal before fall, but it will be a most fortunate dealer who will be able to go into the cooler weather with capacity stocks of any kind or size of fuel. When three or four cars of coal stand on a retailer's trestle for a few days customers stop in the office and drop the apparently casual remark: "There must now be plenty of coal—how about sending me around another ton or two?"

With few exceptions the yards are still practically empty, so the demand for all the family sizes continues unabated. Stove and pea probably have the call, but only because they are ordinarily the most popular sizes. Egg continues short largely because it is being bought heavily for manufacturing use in lieu of broken, but aside from this there is a strong demand for domestic use. Because many yards have had absolutely no shipments of stove during June the cry for it is more insistent than ever. Chestnut too has been neglected until those who did have small stocks on hand would welcome shipments, as it can often be substituted for either stove or pea.

Pea continues to occupy a hopeless position in which we expect to see it for months to come. Many customers are being frankly told that they can hardly expect to get their orders for pea coal filled and are advised to stock any size they are able to use. One of the largest companies has shipped into this market in June more pea than any of the other family sizes, but their tonnage in general has been extremely light. The dealers now all seem to realize

that they will be unable to store up their customary tonnage of pea and if chestnut is available they are sure to buy blocks of it as a substitute.

The big shippers continue to advise their trade here that those in charge of the distribution of the bulk of the coal are having it consigned to New England. The president of one of these companies is chairman of the committee which is endeavoring to regulate shipments and his instructions to his own company are rigid. It is apparent to all in the trade that his customers in the Philadelphia territory have in no way been favored.

The market for No. 3 buckwheat or barley has suddenly become much easier and there is a strong possibility of its selling from 20c. to 25c. a ton less than the rate at which heavy contracts were taken early in the spring.

For weeks past the Lehigh Valley R.R. would not allow cars of that road to be loaded to points south of Trenton, and now orders have been issued by the Pennsylvania R.R. that all cars of that road reaching the Lehigh Valley must be turned immediately back to that line at the nearest point. This makes it almost impossible for yards located on the Pennsylvania to get shipments from their usual source of supply, as they must depend entirely on the few foreign cars of other roads that are allowed to be loaded in this direction.

One local dealer recently decided he would lay in a stock of bituminous coal for domestic trade next winter. He discovered that even the poorest grades of bituminous coal were being sold at prices as high or even higher than ordinary anthracite. Even at that it might be a good idea to get a stock of a good grade of bituminous coal; even if the domestic trade did not call for it in an emergency it would be easy to sell it at a profit to small steam users.

The prices per gross ton, f.o.b. cars at mines for line shipment and f.o.b. Port Richmond for tide, are as follows:

Line	Tide	Line	Tide		
Broken....	\$5.00	\$6.15	Buck.....	\$2.90	\$3.80
Egg.....	4.15	5.25	Rice.....	2.40	3.40
Stove.....	4.40	5.60	Boiler.....	2.20	3.30
Nut.....	4.50	5.55	Barley....	1.90	2.15
Pea.....	3.10	4.00			

**Bituminous**—At the moment the short car supply is the dominating factor in the situation and as a consequence coal has become extremely scarce here. It is claimed that the mines on the B. & O. R.R. are only receiving about a 30 per cent. supply, while the Pennsylvania R.R. operators are receiving about a 35 per cent. supply. It is believed the supply of all roads has lately run between 30 per cent. and 40 per cent. The natural consequence of this condition has been an increase in prices, although the increase has been quite moderate. The majority of coals increased about 25c. a ton, while a few have not as yet been affected. As a matter of fact it is rather difficult to quote prices, as there has been considerable fluctuation all week and the indications are that this will continue for a while yet.

Slack coal continues in strong demand and is very scarce, at times being almost impossible to get.

None of the large industrial plants in this district seem to be actually suffering for coal at this time and quite a few of them have really been able to increase their storage stocks to a slight extent. This is especially true of the public utility plants, although it is reported that they have paid top prices in order to get the best quality of fuel, as several of them have had better experiences experimenting lately with coal unadapted to their uses. Quite a few complaints are heard at all times about the quality of coal which some consumer is led into buying, thinking on account of the high price quoted that it must be all right. While all shippers handle some tonnage of this kind, most of the better established firms frankly sell it for what it is and oftentimes the consumers are willing to take a chance, especially when they are hard pressed at the time.

All interests are anxiously awaiting the working out of the details in connection with the operation of the pool for tide coal, to which the shippers have now agreed. There are few if any complaints heard, as there is a general feeling of cooperation evident, yet many persons seem to be quite dubious as to the working out of the system without a great deal of friction. However, as the operators are promised a much increased car supply by the plan, they feel that is certainly great compensation for some of the annoyances necessary to the operation of the plan. There is no doubt that all operators want more coal and can get it out if they have the cars.

The prices per gross ton, f.o.b. cars at mines, are as follows:

Georges Creek Big Vein .....	\$6.00@6.25
South Fork Miller Vein .....	6.00@6.25
Clearfield (ordinary) .....	5.75@6.00
Somerset (ordinary) .....	5.75@6.00
West Va. Freeport .....	5.25@5.50
Fairmont gas lump .....	5.75@6.00
Fairmont gas, mine-run .....	5.50@5.75
Fairmont gas, slack .....	5.25@5.50
Fairmont lump, ordinary .....	5.50@5.75
Fairmont mine-run .....	5.25@5.50
Fairmont slack .....	5.25@5.50

#### BALTIMORE

**Anthracite conditions far from satisfactory.** Many conditions imposed. Bituminous market tight in face of light deliveries.

**Anthracite**—The trade is far from satisfied with many of the conditions now facing distribution of hard coal. There is a general continuance of premiums on prompt fuel of from 30 to 50c. Even then it is not always possible to get all the coal wanted. While the past week saw a better movement of anthracite to this point, the first part of the month had seen almost a void. Certain kinds of coal, such as pea and No. 3 Sunbury are almost unobtainable. To get these grades the dealers here frequently have to combine their order with other fuels, when lots are offered.

**Bituminous**—The soft-coal market is tightening again. After a brief period of easier supply, car movement has fallen far back and deliveries are barely enough to keep pace with the more urgent demands. Talk of pooling, Government regulation of supply and prices, and kindred moves are for the moment less important than inability to secure fuel as needed. While all the railroads are being besieged with requests from small operators for sidings or mine approaches, the general operating field is finding it hard to get even 50 per cent. of the labor needed to get out a maximum tonnage. Slack continues a feature. Spot prices here, mine basis, are again 25 to 50c. higher than the offerings at the mines for delivery.

Prices to the trade at the mines per gross ton are about as follows: Georges Creek \$5.75 to \$6; Somerset, \$5.50; Quemahoning, \$5.50; Clearfield, \$5.25; Freeport, \$5; Fairmont gas, three-quarter, \$5.25; run-of-mine, \$5.25; slack, \$5.50.

Vessel supply remains poor. There is much doubt expressed in local shipping circles as to whether the tidewater coal-pooling movement will greatly speed the coastwise vessel movement.

The Tidewater Coal Exchange move had the effect here last Monday of causing the formation of an Association of Baltimore Bituminous Coal Shippers. The first move was to send a recommendation to Washington for the appointment of James T. Doyle, of Baltimore, for deputy tidewater commissioner for this city. J. Edward Hebline was named as president, John C. Lewis, secretary, and Frank J. Taylor, treasurer.

#### HAMPTON ROADS

**Heavy arrivals of vessels causing congestion. Prices without change. Anthracite advances 50c. Labor shortage.**

For the past week vessels of all classes have been arriving in unusual numbers and congestion is very serious. On one day recently there were some 25 vessels at one of the terminals waiting for berths. In normal times with plenty of coal this condition could not endure for more than a few days, but now that coal is so scarce it takes about a week to get rid of the congested condition of the piers.

Prices for New River and Pocahontas show no change, though anthracite has advanced 50c. per net ton. The principal trouble here is the shortage of labor at the piers. This condition is most serious and is not confined to the coal piers. Other railroads and transportation lines are hard hit. It is hoped that the Tidewater Coal Exchange can devise some scheme to overcome this difficulty, thereby giving dispatch to vessels and releasing cars. If necessary the trimmers and dumpers should be drafted into the Government service.

Current quotations are about as follows for Pocahontas and New River run-of-mine: For cargo shipment foreign and coastwise, \$7.50@8, bunker coal some 50c. per ton higher. Local deliveries on track, \$6.50@7 per net ton. Anthracite, \$9.50 per net ton delivered, less 50c. per ton for cash.

Dumpings at the Hampton Roads piers for the past several weeks were as follows:

	June 2	June 9	June 16	June 23
Nor. & West...	118,193	123,456	112,360	121,023
Ches. & Ohio...	114,536	91,387	83,959	.....
Virginian.....	88,602	94,445	89,165	.....
Total.....	321,331	309,288	285,484	.....

## OCEAN FREIGHTS

Very few charters were completed for export coal during the past week, owing to the great scarcity of steamers available for such business, and none of the charters that were effected were reported. Freight conditions are practically the same as a week ago and any changes that have occurred in the market were toward a higher level.

We would quote freight rates on coal by steamer as follows:

	June 25	June 18
Europe		
West Coast Italy \$		
Marseilles . . . . .	100.00 about	\$100.00 about
Spain(Atlantic)*	30.00@36.00	30.00@36.00
Spain(Med'tn)*	32.40@38.40	32.40@38.40
Note—Charters for Italy, France and Spain read: "Lay days to commence on steamer's arrival at or off port of discharge."		
South America		
Montevideo . . . . .	\$30.00@30.60	\$30.00@30.60
Buenos Aires . . . . .	30.00@30.60	30.00@30.60
Rosario . . . . .	32.16 about	31.68 about
Rio Janeiro . . . . .	32.50 about	32.50 about
Santos . . . . .	34.00 about	34.00 about
Chile(good port)	17.50@18.50	17.50@18.50
West Indies		
Havana . . . . .	6.00 about	6.00 about
Cardenas, Saguia . . . . .	7.50@8.00	7.50@8.00
Cienfuegos . . . . .	8.00 about	8.00 about
Port au Spain . . . . .	10.75 about	10.75 about
St. Lucia . . . . .	10.75 about	10.75 about
St. Thomas . . . . .	9.00@9.50	8.75@9.00
Barbados . . . . .	10.75 about	10.75 about
Kingston . . . . .	7.50@8.00	7.25@7.50
Curacao <sup>1</sup> . . . . .	9.00@9.50	8.75@9.25
Santiago . . . . .	8.00 about	8.00 about
Guantanamo . . . . .	8.00 about	8.00 about
Bermuda . . . . .	7.00@8.00	7.00 about
Mexico		
Vera Cruz . . . . .	9.00@10.00	9.00@10.00
Tampico . . . . .	9.00@10.00	9.00@10.00

\* Spanish dues for account of cargo. <sup>1</sup> And p.e.  
\* Or other good Spanish port. <sup>2</sup> Net.  
W. W. Battie & Co.'s Coal Trade Freight Report.

## Coastwise Freights

Water rates are now conceded to be on a much lower level than the nominal quotations for several weeks back. Rates of \$3 @3.25 that were privately made a week ago are now openly quoted, Hampton Roads to Boston, on fair-sized tonnage.

New York rates to Long Island Sound stiffened a little in response to a better supply of coal at the piers, thereby causing renewed inquiry. Up to \$1.60 was paid this week, 8 days to load and discharge. The \$4 rate that has prevailed so long on small coasters is now being cut materially.

## Lake Markets

## PITTSBURGH

Market stagnant awaiting news from Washington regarding price fixing. Quotations nominally unchanged. Shipments chiefly on open contracts. Car and labor shortage.

The coal market situation is naturally up in the air at this writing as Government price fixing is regarded as probable, but there is not information as to when or how such a system would be put into operation. The coal operators were summoned to Washington to meet representatives of the Advisory Commission, the ostensible purpose being for the authorities to gather information as to conditions and prospects. No definite advices seem to have been received from Washington thus far as to the trend of affairs there. Some of the coal brokers have gone to Washington, not on invitation but for the purpose of picking up information, as they have been making very satisfactory profits of late and have doubts whether there would be any place for them in a system of Government regulation.

Meanwhile the demand for spot coal is extremely light, not enough to make a market, while the operators are quoting the same prices as formerly and in some instances even higher prices. It is evident that they are not selling any considerable tonnage of coal in the open market but shipments on the open contracts are going as usual and the operators quote full prices, despite the lightness of spot demand, in order to sustain the settlement prices on these contracts, settlements being usually made weekly. Car supply is rather unsatisfactory and there is more labor shortage, the men showing less disposition to work.

We quote the spot market at the same level as a week ago, but largely nominal: Steam, \$4.75@5 for mine-run and \$5 for slack; 1-in. gas, \$5@5.25, per net ton at mine, Pittsburgh district.

## BUFFALO

Cars a trifle easier but situation continues stiff. Prospects of Government price regulation causes uncertainties. Anthracite continues short.

**Bituminous**—The situation changes for the worse rather than otherwise, unless it may be that cars are a trifle more easy. Extra caution has to be exercised by jobbers and shippers generally on account of the prospect of the Government fixing a maximum price and upsetting all prices made by the mines. As a rule the Buffalo jobbers would welcome something of the sort, for they know the mine prices are too high and irregular. Some days they will differ a full dollar for much the same grade of coal. The consumer, who for so long practically made all prices, now pays what is asked and has no voice in the market. With so much complication it is perhaps enough that the consumer gets as much coal as he needs.

The complaint of poor rail service and the apparent indifference of the lesser road officials continues. Shippers seem to be obliged to follow practically all their cars from the mines to destination, even then losing all track of them sometimes for weeks. Jobbers would gladly give up a fair share of their profits if the business would move along smoothly.

Bituminous prices are apparently unchanged on the average, though decidedly unsteady and a trifle weak for the most part, being based on \$5 for regular Pittsburgh coal as follows:

Voughiogheny Gas . . . . .	\$6.25@6.75
Pittsburgh Steam . . . . .	6.10@6.60
Ohio No. 8 . . . . .	6.05@6.55
Bessemer . . . . .	5.95@6.45
Allegheny Valley . . . . .	5.85@6.35
Cambria Co. Smithing . . . . .	6.80@7.30
Pennsylvania Smokeless . . . . .	6.85@7.35
All Slack . . . . .	5.70@6.20
Cannel . . . . .	6.50@7.00

All quotations are per net ton, f.o.b. Buffalo.

**Anthracite**—The situation is even more distracting than in other coals, for in this case the consumer is afraid he is not going to get a supply unless it is put in now and is making every possible effort to obtain enough to last till next spring, with the result that there is an apparent coal famine everywhere. Still the shipping agents and distributors say that they have put as much coal as usual in the hands of consumers and expect to meet the actual demand.

The shipments of coal by Lake steadily increase, in spite of the complaints of local anthracite consumers that there is discrimination in favor of the Northwest. The fact is that the Northwest must get its supply during the open Lake season if it does at all. For the week the amount is 133,900 net tons, of which 49,700 tons cleared for Duluth and Superior, 25,200 tons for Chicago, 14,900 tons for Fort William, 22,900 tons for Milwaukee, 10,500 tons for Marquette, 6650 tons for Hubbell, 3000 tons for Port Arthur, 1100 tons for Houghton.

Coal freight rates are still uncertain. To Hubbell and Houghton they have advanced to 75c.; to Marquette, 50c. All others are given as contract, which is about equivalent to 50c. to leading Lake Superior ports, 60c. to Chicago and 75c. to Milwaukee.

## TORONTO, CAN.

**Coal coming forward freely. Dealers still much behind in filling orders. Committee of citizens working on civic storage scheme. Dealers averse to bidding on Government contracts.**

Conditions in the coal trade show little change. Dealers are still much behind in filling accumulated orders, but are gradually overtaking arrears, and there is no abatement of the anxiety of consumers to lay in large stocks ahead. Railroad deliveries are prompt and satisfactory.

The municipal authorities are still actively endeavoring to secure a supply for storage to provide against a shortage next winter. Property Commissioner Chisholm has been appointed coal commissioner, while a committee of representative citizens, including the presidents of the Board of Trade and the Toronto branch of the Canadian Manufacturers' Association, will act in an advisory capacity. The Canadian and Provincial Government has asked for tenders for coal for the Parliament Buildings, Osgoode Hall, and other public institutions in Toronto, but dealers are unwilling to bid.

Quotations for best grades per short ton are as follows: Retail anthracite, egg, stove, nut and grate, \$9.50; pea, \$8.50; bituminous, steam, \$9; slack, \$8 to \$8.50; domestic lump, \$9; cannel, \$11; wholesale f.o.b. cars at destination, three-quarter lump, \$8.35; slack, \$7.85.

## DETROIT

Limited supplies of steam coal continue to maintain prices at high level. Anthracite receipts are light. Lake movement is gaining.

**Bituminous**—With demand maintained in rather steady volume there is no improvement in the quantity of steam coal available. While coal is apparently obtainable for those who are willing to pay the price, the supply continues so limited that there is no tendency toward a lower range of prices. The jobbers are having much trouble at times in locating coal for their customers promptly. The fact that domestic consumers are no longer a prominent factor in the market does not seem to have increased the supply of coal available for the steam plants.

Jobbers are quoting lump and egg steam coal at the equivalent of \$5 at the mines and for nut, pea and slack, the price is from \$4.50 to \$5, while on mine-run quotations hold about \$4.25 to \$4.50. Smokeless lump and egg, of which little is to be found in the local market, carries a quotation of \$6 to \$6.25 at the mines, and smokeless mine-run is offered at \$5.25, with stock almost unobtainable.

Though consumers of domestic coal are giving little attention to the market, some of the retail dealers are placing moderate-sized orders. Others of the retailers show a tendency to hold back and talk of a possibility that cheaper coal may be had later in the year, after pressure eases off on Lake shipments.

**Anthracite**—Orders placed for anthracite for retail yards have failed, in many instances, to get the coal, while some of the other dealers have been able to get part of the supply they desired. Continued congestion on tracks in the East is blamed for occasioning some of the delay. Consumers who have placed orders for early delivery, are, for the most part, still unable to get served.

**Lake Trade**—Shipments of Lake coal have increased slightly during the week. The movement from the Pittsburgh district is still unsatisfactory.

## CLEVELAND

**Car supply improving. Strong demand for Lake coal. Prices still advancing.**

The local market has been very strong the past week, notwithstanding the fact that most Ohio mines have had almost a full capacity car supply. The main reason for this is the strong demand for all grades of coal for reshipment to the Northwestern docks via Lake, and prices have advanced an average of 25c. per ton since our last report.

A year ago conditions in the car supply were reversed from what they have been this season. Last season the car supply started out good and decreased toward the end of the season. This year the supply started poor and has been showing constant improvement, especially since June 1, on which date the Lake Erie pooling arrangement went into effect. Figures of the pooling exchange show that cars are coming forward from the mines more freely while Lake boats are plentiful enough to effect quick unloading of the cars and the tonnage being loaded into vessels is increasing every day. Should these conditions continue for two or three months, a large part of the shortage on Northwestern coal docks will be overcome.

W. E. Davis, commissioner of the Cleveland municipal light plant, has prepared a report to be presented to the City Council recommending the city lease the output of a West Virginia coal mine for the next five years at \$3 per net ton, f.o.b. mine.

Following are the market prices per short ton, f.o.b. Cleveland:

	Three-quarter	Mine-run	Slack
No. 8 . . . . .	\$5.75	\$5.75	\$5.75
Cambridge . . . . .	5.75	5.75	5.75
Middle District . . . . .	5.75	5.75	5.75
Hocking . . . . .	5.50	5.50	5.50

## COLUMBUS

**Trade firm. Prices are strong and Lake business is quite brisk.**

The coal trade has been firm during the past week and the high levels of several weeks have been well maintained. Buying for Lake shipment and steam purposes is active, while there is also some domestic demand. But dealers generally hold off on orders, believing that the Federal Government will take some action in fixing coal prices.

Lake trade is one of the most important departments. Shipments are larger than usual, being stimulated by the pooling arrangements which have proven eminently satisfactory. The shortage in the Northwest is so marked that every effort will be made to get a large tonnage to the upper Lake ports before the close of navigation. Lake prices are strong and the Lake coal rates on free bottoms is constantly advancing.

The steam business is also active as requisitions of iron and steel plants are unusually large. Railroads are taking a large amount for the movement of freight. High prices have effectually stopped stocking to any degree.

The domestic trade is quiet, owing to the mid-season period and belief that prices will be much lower when the Federal Government takes a hand. There is a strong demand for Pocahontas and other fancy grades, such as White and Red Ash. Anthracite is scarce and high and the same is true of domestic coke. In fact, retail prices are maintained at former levels, which range between \$6.50 and \$8.50 on all bituminous grades.

Production has been stimulated by a better car supply in all of the mining sections of the state. This is especially noticeable in eastern Ohio and Pomeroy Bend fields.

Prices on short tons, f.o.b. mines, are as follows:

	Hock-	Pom-	Eastern
	ing	eroy	Ohio
Rescreened lump.....	\$4.50	\$4.50	
Inch and a quarter.....	4.50	4.50	\$4.50
Three-quarter inch.....	4.25	4.25	4.25
Nut.....	4.25	4.25	4.25
Egg.....	4.25	4.25	
Mine run.....	4.00	4.00	4.25
Nut, pea and slack.....	4.00	4.00	4.00
Coarse slack.....	4.00	4.00	4.00

#### CINCINNATI

Market strong and quiet, with the trade somewhat disturbed over prospects of state and Federal intervention. Movement is in large volume.

The principal feature of the week's coal market in Cincinnati was the several developments indicating the possibility of active interference in the coal business of both the State and Federal governments. There has continued to be a strong demand for coal by large consumers, who are still unable to secure satisfactory contracts for their requirements, and who are beginning to fear that they will be compelled to go into the open market during the entire year in order to get coal. Reports of a Government-controlled pool, on the one hand, and of action by the Ohio authorities on the other, indicate the pressure which is being brought by outside interests to effect some sort of adjustment of the situation. Coal men point out that the principal factor is the inability of the railroads to move the coal, and that there is apparently no method by which the Government can remedy this, inasmuch as all possible means of facilitating transportation have already been tried.

#### LOUISVILLE

Embargoes against Lake shipments holding prices down. Voluntary curtailment of distribution proposed to help car supply. Labor shows no improvement.

Kentucky coals are being depressed as a result of embargoes against roads serving Lake markets, notably the Perre Marquette and the Michigan Central, the former because of alleged unequal holding of cars, and the latter on account of shipment to points in Ohio. Operators are looking to some developments in connection with the Federal control movements, etc., and it is believed that if Federal authority were to be exercised to compel an exchange of cars the situation would presently work itself out. Meanwhile there is a movement among the operators to restrict shipments to points not too far distant and from which experience has shown too long a time is required for return of cars.

Eastern Kentucky and east Tennessee coals are selling about as follows for the top grades: Block, \$4.75; mine-run, \$4.75; steam and nut and slack, \$4.25. The second and third grades range: Block, \$4.25; mine-run, steam and nut and slack, \$4. Western Kentucky mines on the Louisville & Nashville quote block at \$3; lump, \$2.75; mine-run, \$2.35; nut and slack and pea and slack, \$2.25. Mines on the Illinois Central, which can ship north of the river, get 50c. more on the ton for the first two classes, 40c. more for the second and 25c. more for the third.

Fuel contracts with the Southern Railway for the coming year have been closed with operators in east Tennessee, southeastern Kentucky and Virginia. It is estimated that about 4,000,000 tons will be re-

quired for the "lines east" of a line drawn from Cincinnati, through Chattanooga to Jessup, Ga. This coal will be furnished from the Middlesboro, Clearfork and Clearfield coal districts in Kentucky; Jellico and Caryville, Tenn., districts and from mines along the Appalachian division in Virginia. The prices are not stated.

#### BIRMINGHAM, ALA.

Spot inquiry good in local market past week. Prices remain firm. Car supply not so good, some lines being very short of equipment, improvement being noted the latter part of week.

Inquiry was reported as being much better this week than last and a fair volume of business was booked at prices which have fluctuated very little in several weeks. Big Seam and Carbon Hill mine-run brought \$3@3.50, Pratt, \$3.75, and Black Creek \$4@4.25 per net ton mines. Steam lump was quoted at \$3.75@4.25. Blacksmith coal, \$5.50@6 f.o.b. mines.

Demand from retailers continues good, quotations ranging from \$4.25 to \$5.50 for lump and nut per net ton mines. Very little domestic coal is available now in the spot market and will not be before October, at which time contract deliveries will have been completed.

There will be a general advance in the wages of miners and mine laborers, effective July 1. Mines throughout the district are suffering from labor shortage and production of both coal and coke is being held down on this account. The United Mine Workers are proceeding with their organization of locals with varying degrees of success, and although they contend that they have no intention of calling a strike, as a matter of fact they will likely demand recognition from the operators in the near future, and it is generally understood that mine owners will decline to enter into any negotiations with the union.

#### Coke

#### CONNELLSVILLE

Car supplies poor despite order of Commission on Car Service. Spot prices higher. No contracting. Possibility of Government price regulation.

Car supplies in the Connellsville region Monday of this week were 80 per cent, while on Tuesday they dropped to 50 per cent, and they are not expected to be any better the remainder of the week. The case before the Commission on Car Service, referred to in last report, resulted in the Commission issuing an order, received by the railroad officials in Pittsburgh on June 20, to furnish the Connellsville region 20 per cent. more cars. The officials held a meeting and expressed the opinion that they could comply with the order, but there is certainly no improvement to be noticed thus far. On the contrary, spot prices have advanced considerably on furnace and still more on foundry, but whether this is due to diminished supplies or to a desire to stock up against the lighter shipments to be expected next week on account of the holiday cannot be determined. Operators and brokers alike say that the advances of the past week, \$1 to \$2 a ton, are due to consumers bidding the market up on themselves.

The opinion is continually spreading that the Government will eventually step in and regulate coke prices, but the opinion is still far from general. The summoning of coal operators to be in Washington Monday of this week has naturally encouraged the feeling that something will be done with coke.

A great many coke contracts expire June 30. Practically all of these have been renewed as to tonnage, but not as to price, an arrangement being reached whereby the shipments continue, but on a weekly or monthly price fixing. There is no contract market. In this the coke market is passing through the same process as occurred with the coal market April 1. We quote spot coke at \$13@13.50 for furnace and \$14@14.50 for foundry, per net ton at ovens.

The "Courier" reports production in the Connellsville and lower Connellsville region in the week ended June 16, at 354,459 tons, a decrease of 6629 tons, and shipments at 345,123 tons, a decrease of 16,356 tons.

**Buffalo**—Prices are higher. So far as appears the increased shortage of cars and the scarcity of help are responsible for the advance, as there is no particular change in the demand. Consumers are getting a fair supply, but they do not feel like stocking up, on account of the extreme prices and are mostly paying the going rate. The weekly receipt of iron ore by Lake has increased to 261,926 gross tons.

**Birmingham**—A strong inquiry features the coke market, while on the other hand the shortage in supply is perhaps more pronounced than for several weeks. The normal production is not being obtained at the ovens in many instances due to scarcity of labor and the impairment of its efficiency by the hot weather, and when contract requirements are met there is little coke left for the open market. Quotations on foundry coke range from \$11.50 to \$12.50 on contracts and from \$12.50 to \$15 per net ton ovens to the spot trade. Contract consumers are eager to increase the tonnage booked, but producers are not in a position to meet their wishes. Furnace coke prices range from \$6 to \$8 per ton with little available to the trade.

The movement of coke is easier with an increased car supply and little or no restrictions placed on destinations. However, shippers are cooperating with the railroads in so far as possible by consigning cars to system destinations.

#### Middle Western

#### GENERAL REVIEW

**Coal situation improving.** Operators have requested immediate and earnest cooperation of the public. Demand continues very strong for all grades.

There has been some improvement in the general situation, especially with regard to car supply, and the movement of loaded cars. Some of the Northern Illinois mines report 80 per cent. car supply, and very little loss of time due to other causes. The central and southern districts have had better supply of equipment than at any time the past six months, and as a result of heavy shipments there has been a slight softening of the screenings market, but prices as a whole have been well maintained.

The Indiana-Illinois mines will be called upon to provide a minimum of 25,000,000 tons more coal than last year, because of the inability to get the usual amount of Eastern coal, and unusual industrial activity. The majority of the railroads of Illinois have from Apr. 1 to date, moved approximately twice the volume of coal sent forward during the same period within the coal history of the state. The tonnage moved, however, is not sufficient even if continued at the present rate.

Officials of railroads operating at the head of the Lakes are arranging for a mobilization of cars to take care of the rush during the fall. Receipts of coal at most of the docks for the current season have, in most instances, been greater than for the corresponding period last year, but this is no criterion to go by since there was no supply of coal on hand at any of the docks for quite a period prior to the opening of navigation, and during the first few weeks of the 1916 season movement of coal up the lakes was very slow and considerable tonnage was carried over from the previous winter.

#### CHICAGO

Anthracite shipments heavier via Lake and all-rail. General improvement in car supply at Indiana and Illinois mines. Prices firm and demand continues for all grades. Shipments of Eastern bituminous to Chicago market very light on account of excessive prices and embargoes.

There has been a decided increase in arrivals of anthracite the past week, but the supply is still inadequate, and it is not expected that the heaviest tonnage will come forward until next month. The prices have not changed since the June price went into effect the first of the month. The retail price here is lower than on a number of grades of Eastern bituminous that formerly were in big demand, but now are almost prohibitory on account of the increased price.

The demand in Chicago outside of anthracite is for Indiana and Illinois coals due to lower mine prices and freight rates. Eastern shippers are not making much effort to take care of this market due to the demands in other sections being such that there is no difficulty in securing business at most any reasonable price.

In Franklin County the supply of cars and movement of loaded cars has been very good as compared with earlier in the spring. Shipments for the week are in excess of 240,000 tons, and the total tonnage for this month will be slightly in excess of 1,000,000 tons, a record breaker for June. The more seasonable weather has had a tendency to ease up the buying to some extent, but orders on hand are far in excess of possible shipments during the next three weeks. Some screenings have been sold as low as \$2.75 per ton at mines, but other grades are very firm.

The Williamson County mines are accepting all orders on basis of price in effect date of shipment. Screenings are less firm than one week ago, and some sales have been noted at prices ranging 10c. to 25c. below last week.

Saline County mines have been bothered with car shortage, especially the mines served by one railroad only. Holidays have also interfered with operations. Prices are very firm and free coal has been as high as \$4 for domestic sizes. Screenings are on the same level with Franklin and Williamson Counties.

Due to the large amount of storage coal placed with Springfield mines by Northern railroads, there has been no weakening of prices nor falling off in orders. Most of the mines are sold up for 30 days, and any surplus coal is taken by the railroads. Prices on screenings are the same as during the past three weeks.

Fulton and Peoria, also Grundy, La Salle, Bureau and Will Counties report good supply of cars and very little loss of time. Demand for all sizes is brisk, and the surplus, if any, is taken by the railroads for storage.

The Indiana market was slightly off part of the week, and prices dropped temporarily, but at the end of the week there was a noticeable increase and prices are about the same as during the early part of the month. Car supply has been fairly good, and quite a bit of new business is coming from various Michigan towns generally supplied by Eastern coal.

Very little smokeless and other West Virginia coals are moving to this market. Inadequate car supply and embargoes together with a much higher delivered price is preventing much of this coal reaching Chicago. There has been no change in prices.

Hocking and Eastern Kentucky coals also are practically out of this market for the same reasons that affect smokeless coals.

	Fulton and Spring-field	Peoria Cos.	Clinton and Sullivan Cos.	Green and Knox Cos.	Carter-ville & LaSalle, & Will Cos.	Grundy & Will Cos.
Domestic lump	\$3.25@3.50	\$3.25@3.50	\$3.25@3.75	\$3.25@3.50	\$3.50@3.75	\$3.25@3.75
Steam lump	3.00	2.75@3.25	3.00@3.25	3.00	3.25@3.50	3.00@3.25
Egg	3.25@3.50	3.25@3.50	3.25@3.75	3.25@3.50	3.50@3.75	3.25@3.75
Nut	3.25@3.50	3.25@3.50	3.25@3.75	3.25@3.50	3.50@3.75	3.25@3.75
Mine-run	2.75@3.00	2.75@3.00	2.75@3.00	2.75@3.00	3.00@3.25	3.00@3.25
Screenings	2.25@2.50	2.75@3.00	2.75@3.00	2.75@3.00	2.75@3.25	2.75@3.00
Williamson and Franklin Cos.						
Lump	\$3.50@3.75	\$3.50@3.75	\$3.50@3.75	\$5.00@5.50	\$5.50@5.75	\$5.00@5.75
Egg	3.50@3.75	3.50@3.75	3.50@3.75	5.00@5.50	5.50@5.75	5.00@5.75
Nut	3.50@3.75	3.50@3.75	3.50@3.75			
No. 1 nut	3.50@3.75	3.50@3.75	3.50@3.75			
No. 2 nut	3.50@3.75	3.50@3.75	3.50@3.75			
No. 3 nut	3.00@3.50	3.00@3.50	3.00@3.50			
No. 1 washed	3.50@3.75					
No. 2 washed	3.50@3.75					
Mine-run	3.00@3.50	3.00@3.50	5.00		5.50	5.00
Screenings	2.75@3.25	2.75@3.25				
Hocking Lump	\$4.50@4.75	Splint Lump	\$4.50@4.75			

Sales of the latter are reported as high as \$6 per ton at mines.

Quotations in the Chicago market are as follows, per net ton f.o.b. cars at mines:

#### ST. LOUIS

Market conditions much easier in general and coal seems more plentiful from all fields. Proposed increase in freight rates suspended. Domestic market easy, demand light, and no surplus is offered. Eastern coals more plentiful. Car supply short.

An easier tone continues in the local market. There is practically no demand locally for Williamson or Franklin County, and the domestic call for these sizes is nil.

There is some country call, but this is limited and scattered. The price of Williamson and Franklin County is so much higher than coal from the other fields that the dealers are advising their trade to buy the cheaper grade. The same condition exists in the steam plants. There has actually been a surplus of coal for the Northern market, but this has been kept moving at prices below the circular. There is some talk of the circular price increasing on July 1, but this is not definite. It will depend largely upon the demand and the conditions.

Screenings in the high grade field are weak, as are all steam sizes. The call from the South for high grade has been better than from any other section, especially on the Iron Mountain.

In the Mount Olive and Staunton field the mines are working steady on railroad tonnages largely, and the domestic tonnage is being taken care of at the circular price.

In the Standard field the tendency has been to strengthen. The large tonnage of railroad coal is limited and continues to restrict the tonnage of domestic sizes. The demand for this coal is growing on account

of the prices being so far under high grade, and it is being shipped to places that have never used anything but high grade before. Chicago is also buying heavily in the Standard market. Steam coal in this market is stronger than any place else.

The car supply has been from two to two and one-half days a week as an average in the southern Illinois fields. There are still some embargoes and restrictions on. The suspension of the proposed increase in freight rate has eased up the conditions locally.

There has been considerable anthracite moving in the past week and also West Virginia smokeless. Arkansas continues to move in, in good volume. There is no circular on any of these coals. They all bring what the market can stand.

The prevailing circular at St. Louis per net ton f.o.b. mines is as follows:

	Williamson and Franklin County	Mt. Olive Staunton	Standard
6-in. lump	\$3.50	\$2.35	\$2.50@2.75
3x6 in. egg	3.50	2.25	2.50@2.75
2x3 in. nut	3.50	2.25	2.50@2.75
No. 2 nut	3.50	...	...
No. 3 nut	3.25	...	...
No. 4 nut	3.00	...	...
No. 5 nut	2.50	...	...
2-in. screenings	2.50	2.00	1.80
2-in. lump	...	2.25	2.25
3-in. lump	...	2.25	2.25
Steam egg	3.50	2.25	2.25
Mine run	3.00	2.25	2.00
Washed:			
No. 1	3.50	3.00	...
No. 2	3.50	3.00	...
No. 3	3.25	2.50	...
No. 4	3.00	2.00	...
No. 5	2.50	1.70	...

Rate on Williamson and Franklin County is 7½¢. Rate on other fields is 57½¢.

#### SEATTLE, WASH.

Increase in production costs cause big advance in coal prices. Transportation difficulties and shortage of labor contribute to the rise.

The recent increases in the scale of wages paid coal miners in the state of Washington have been added to the price of coal as evidenced in the stiffening of quotations. Transportation difficulties and a shortage of labor in some mines are blamed for fuel shortage which facts also contribute to the higher prices now prevailing throughout the state. Coal dealers in Spokane testifying before the City Council of that city on a municipal inquiry into the high costs of products stated that a labor shortage generally, a strike in the Crow's Nest coal fields of Canada, from which considerable coal for consumption in Eastern Washington and Idaho is obtained, and a scarcity of railroad cars had made it difficult for wholesale dealers to fill present orders to say nothing of accumulating a surplus for next winter. Some dealers were inclined to believe that coal in and about Spokane would go to \$12 a ton this winter as compared with \$6 a ton last year.

Present coal prices in Seattle are: Newcastle mine-run, \$5.50; Renton steam, \$4.10; Renton lump, \$6; Wingate steam, \$4.90; Wingate lump, \$7.75; Grand Ridge mine-run, \$4.25; Grand Ridge lump, \$5.40; Black Diamond steam, \$4; South Prairie, \$4.50 on large orders. Prices at this time last year on some of these grades were: Renton steam, \$3.85; Renton lump, \$5.50; Newcastle mine-run, \$5; Wingate steam, \$4; Wingate lump, \$5.55.

An order for 1900 tons of Black Diamond steam coal was placed by a government department at \$4 per ton.

#### BOISE, IDAHO

Northern Pacific Ry. withdraws from commercial market. Coal companies announce increase in price on July 1.

The Northern Pacific Ry. Co. has issued a circular letter to its agents stating that it will not be in a position to supply local stations with commercial coal as practically all its equipment which was formerly used in coal service will be required by the government for hauling shipbuilding material and with the situation little improved as regards the availability of cars from the Union Pacific Ry. system for hauling coal from Utah the outlook is anything but bright for an adequate supply of coal at any price this winter.

Dealers have less coal on hand at this time than ever before in the history of the business in this state and as they are literally swamped with orders they cannot fill. This extraordinary demand has also tended to boost the price which has risen 60c. a ton since May 1. The announcement of an additional 50c. raise the first of July has created a situation little short of a panic. Dealers are frank in saying that there will be a shortage this winter, and that prices are apt to be higher than in any other state in the West. The cheapest brands of coal are now selling at \$5.50 and up to \$8 per ton as compared to \$4.50 and \$6 this time last year. Prices July 1 will be \$6 and up to \$8.50 and \$8.75.

#### Northwestern Markets

#### PORTLAND, ORE.

Federal Government places contracts for 7000 tons coal at high price. Some localities unable to secure any quotations. Dealers cannot guarantee deliveries or prices.

The inability of coal dealers in several communities throughout the state to make deliveries now or to guarantee any in the future at any price has created a serious situation which does not promise to improve as the winter months arrive. The only quotations being made now on large quantities are by Washington coal operators who are shipping into the state by barges owing to the scarcity of rail transportation equipment.

Contracts totalling \$25,000 were let recently by the U. S. Lighthouse Inspector for coal for the 16th and 17th Districts at Portland, Ore., Astoria, Ore., and Seattle, Wash., at prices far in excess of those submitted last year. The orders placed were for 780 tons of Black Diamond lump at \$5150 and 2500 tons of Black Diamond steam coal at \$4 per ton delivery at Seattle to the Pacific Coast Coal Co. For coal at Portland the same firm was awarded contracts for 500 tons of Black Diamond steam coal at a price of \$3.50 a ton f.o.b. cars at mine with 50c. handling and storage charges. The George W. Sanborn & Sons Co. was awarded a contract for 2500 tons of Carbonado steam coal f.o.b. cars at mine at a price of \$3.50 a ton with 58c. handling and storage charges for coal delivered to Astoria.

#### Foreign Markets

##### GREAT BRITAIN

June 7—Since last report, the market has experienced a quick change for the better. Free coals offering are limited, and prices exceedingly firm.

Best Welsh steam	Nominal
Best seconds	Nominal
Seconds	\$6.96@7.20
Bast dry coals	6.24@6.48
Best Monmouthshires	6.96@7.20
Seconds	6.24@6.48
Best Cardiff smalls	4.56@4.80
Cargo smalls	4.08@4.56

The prices for Cardiff coals are f.o.b. Cardiff, Penarth or Barry, while those for Monmouthshire descriptions are f.o.b. Newport, both net, exclusive of wharfage.

**Freights**—Tonnage continues to be scarce, and rates in all directions are very firm.

Gibraltar	\$21.00	Port Said	\$28.80
Marseilles	21.54	Las Palmas	18.00
Genoa	24.30	St. Vincent	19.20
Naples	23.58	River Plate	26.40
Alexandria	28.80		

## Financial Department

### By-Products Coke Corporation

This company reports for the year ended Dec. 31, 1916, as follows:

#### INCOME ACCOUNT FOR CALENDAR YEARS

	1916	1915
Total earnings from oper....	\$2,433,345	\$768,544
Earns. from investments....	40,000	12,180
Total earnings.....	\$2,473,345	\$780,724
Expenses, etc.....	\$67,966	\$69,582
Bond, etc., interest.....	185,736	103,157
Depreciation, etc.....	452,517	298,023
Dividends.....	(7½) 392,648	(6) 267,263
Balance for year.....	\$1,374,479	\$42,699

#### BALANCE SHEET DEC. 31

	1916	1915
Assets—		
Plant accounts.....	\$6,247,742	\$6,247,786
Real estate.....	630,704	565,779
Invest. in oth. cos.....	743,837	607,903
Sinking fund.....	463,834	372,752
Cash.....	531,370	278,745
Material and supplies.....	1,759,100	1,792,749
Accounts receivable.....	1,565,237	936,755
Miscellaneous.....	44,821	20,691
Total.....	\$11,986,646	\$10,823,162
Liabilities—		
Capital stock.....	\$5,235,300	\$5,235,300
Stock scrip.....	212,750	
Bonds.....	\$3,190,000	\$2,425,000
Bills payable.....	400,000	825,620
Accrued bond interest.....	91,802	62,631
Wages.....	63,601	53,096
Miscellaneous.....	161,108	28,167
Accounts payable.....	827,435	794,977
Undivided ears.....	1,804,651	5578,370
Total.....	\$11,986,646	\$10,823,162

a before deducting regular dividend of 1½% and extra dividend of 1% paid Feb. 15, 1916, aggregating \$130,882, and \$17,315 for bonus to employees.

\* Includes By-Products Coke Corp. bonds, \$2,000,000 and Federal Furnace bonds, \$1,190,000.

### Delaware & Hudson Railroad Co.

The following abstracts concerning the coal operations of this company have been taken from the annual report for the year ended Dec. 31, 1916:

**Labor**—The agreement with the employees, which took effect on Apr. 1, 1912, terminated on Mar. 31, 1916, and, after extended negotiations, a new agreement was consummated on May 5, 1916, effective on Apr. 1, 1916, extending for a period of four years from that date, that is, to Mar. 31, 1920.

Like all agreements effected since 1902, this one provides an orderly method for the settlement of all questions arising and that, pending resort to that method, work shall not be interrupted by a strike. The ineffectiveness of such agreements has been again demonstrated. The new agreement was consummated, as previously stated, on May 5, 1916. From Jan. 1 to May 4, inclusive, there had been four strikes involving a loss of 202 colliery hours, or, on an 8-hour basis, 25½ colliery days. From May 5 to Dec. 31, inclusive, there were twenty-two strikes involving a loss of 1190 colliery hours, or, on the same basis, 148½ colliery days. During the whole year there were twenty-six strikes with a total loss of 174 colliery days. Prior to May 5 there was an average of one strike for each thirty-one days and the average loss therefrom was 1.61 colliery hours per day; on and after May 5 there was one strike for every 11 days and an average loss of 4.94 colliery hours per day.

The reduction in the hours of labor accentuated the labor shortage which, even without the reduced hours, would have been seriously felt. This, with the failure of the usual sup-

ply of immigrants, upon which the miners regularly depend for the ordinary replenishment of the ranks of their laborers, and the extraordinary number of withdrawals due to the unusual rates of wages offered in munition works and other industries, so decreased the number of men employed and available as materially to affect the output.

The number of men engaged in the primary labor of production, that is, the miners and miners' laborers employed in cutting down coal and loading it in mine cars, fell off from 9752 in January, 1916, to 6967 in November, a decrease of 28.56 per cent. But in January the standard day involved nine hours of effort, in November only eight hours. The difference between 9752 men working nine hours and 6967 working eight hours is a reduction from 87,768 hours per day to 55,736 hours per day, a decrease of 32,032 hours, or 36.50 per cent.

In this situation the unwise of the "Miners' Certificate" law, by which it is made unlawful to employ as a miner any person who has not had two years' experience in the coal mines of Pennsylvania, must be apparent to all. This law makes it impossible to employ as miners men who have acquired skill and experience in other mines of Pennsylvania or in other states or in foreign countries. There is no such restriction upon the employment of miners in the bituminous coal mines of Pennsylvania or elsewhere. Consequently new men of experience seldom remain in the anthracite mines, and the records show that 75 per cent of those who begin in these mines leave within the first year, many of them going to bituminous coal mines, in the same state, in which no period of apprenticeship is obligatory. The "literacy test" imposed by the new immigration law, finally passed over the veto of President Wilson after having failed when vetoed by President Taft, will add to these difficulties.

**General Remarks**—The railway industry continues to be affected by the abnormal economic conditions created by the European war. Many of the changes effected are of stupendous magnitude. Not less significant in an economic sense, is the almost complete cessation in the flow of immigration, on which the United States has depended for a very long period to supply a large fraction of the immense total of manual labor essential.

The excess of alien immigrants over emigrants in the fiscal year 1914 was 915,142, a figure fairly representing the annual flow of the period just prior to the war. The corresponding figure for the fiscal year 1916 was 169,061 and for 1915 it was 122,626. Thus the decrease from 1914 to 1915 amounted to 86.60 per cent, and from 1914 to 1916 to 81.53 per cent.

The extreme stimulation of productive activities, primarily due to the unparalleled expansion of export demand and the accompanying increase in both foreign and domestic trade, required numerous and rapid adjustments and readjustments not all of which could have been expected to be made without friction and difficulty. At the present time the diversion of vessel tonnage from domestic transportation has suddenly thrown upon the railways traffic ordinarily moved over water routes.

There was, during the year, a shortage in the volume of coal reaching Boston by water. As the coal requirements of Boston actually increased, the railways were required to carry a large excess over the normal quantity of coal destined to that port. The tonnage distributed by one railway increased, in 1916, as compared with 1915, more than one million tons, or over one-sixth, but the tonnage received by water, included in its total, decreased about 640,000 tons, or more than one-fifth. This involved an increase of 50 per cent. in the tons moved by rail, and probably more than doubled the number of tons carried one mile. Other New England ports were affected in the same manner.

The Interstate Commerce Commission required the railways reaching ports of the Great Lakes to dispose of the boats which they had operated to and from such ports, and this, together with withdrawals from the Lake service for other reasons, greatly diminished the tonnage available for the movement of coal via the lakes and threw a corresponding burden upon the railroads. Moreover, the extraordinary conditions in the steel trade made it seem desirable to the owners of much of the tonnage, which in the past has carried iron ore southward and coal northward, to refuse the coal tonnage and to send the boats without cargoes on their returning northward-bound trips, in order to save the few days required for loading and unloading coal. At the same time export traffic has concentrated upon the northern Atlantic sea-

ports, particularly upon New York and Boston, because the scarcity of bottoms in foreign trade, even after the diversion thereto of many ships formerly in coastwise trade, and the high trans-Atlantic rates, has made it more profitable to operate over the shorter routes, and has caused still greater scarcity of tonnage at the Gulf and South Atlantic ports. The merchandise traffic moving to Boston by rail has increased about 50 per cent. Other sources of extraordinary demand for railway services have been numerous and may be illustrated by a few examples.

Canadian industries have been abnormally active and it has been necessary for many manufacturers and for the Canadian Pacific Railway to obtain fuel from the United States, this export demand involving an unusual rail movement of the ordinary European sources of the supply of many articles sold largely in the United States has impelled extensive importations of similar articles from China and Japan, thus requiring a long trans-continental movement by rail, but without relieving the Eastern railways from participation in the distribution. Extensions of many American factories and mills, notably in the Pittsburgh district, where railway congestion has at times been severe, have taken up lands formerly allotted by the owners of the plants to the storage of coal, and no other land being available, these establishments have been forced to a "hand-to-mouth" practice, which requires daily deliveries and places the heaviest possible strain upon railway equipment and motive power.

A second and more serious movement also had its origin in the abnormal export trade in war materials. A wild scramble for materials ensued, in which manufacturers not only bid avidly for supplies to meet their necessities for the ordinary periods in advance, but sought to provide for anticipated needs running much farther into the future. The next step in this process might easily have been foreseen. Speculation in commodities became very active and general; it was especially active in the case of fuel, and it soon extended to food products. At one time, when there was a shortage of bituminous coal in the Chicago market, there were several thousand cars of that fuel being held in railway yards at that point in the expectation of higher prices. Similar conditions existed at Detroit, New York and elsewhere.

The results from operation of the coal mining department were:

Year	Coal Mined	Revenues
1916	7,186,380 tons	\$15,758,765.02
1915	8,100,767 tons	15,860,676.65
	*914,387 tons	**\$101,911.63

Year	† Expenses	Net Revenues
1916	\$15,020,371.89	\$738,393.13
1915	14,616,705.70	1,243,970.95
Increase.....	\$403,666.19	**\$505,577.82

\* Decrease.

† Excluding taxes.

COAL MINING DEPARTMENT:		
	1916	1915
Gross revenues.....	\$15,758,765.02	\$15,860,676.65
Gross expenses.....	15,020,371.89	14,616,705.70
Net revenues.....	\$738,393.13	\$1,243,970.95
Taxes accrued.....	615,090.42	467,932.98
Operating income....	\$123,302.71	\$776,037.97
Other Income:		
Dividends and interest.....	704,249.52	704,762.42

**Lehigh Valley Coal Sales Co.**—Lehigh Valley Coal Sales Co. declared a cash dividend of 30%, payable July 14 to stock of record June 1. The board has also authorized an issue of new stock to present stockholders equal to 30% of holdings. Stock is issued to holders of record June 1 and subscriptions close July 11. This action by Lehigh Valley Coal Sales Co. whereby amount of stock is increased 30% and an equivalent dividend is declared amounts to a stock dividend of 30% and brings the total capitalization to approximately the amount at which it was originally intended to be fixed and more proportionate to the assets of company.

